

PLANNING PROBLEMS
OF
TOWN, CITY AND REGION
PAPERS AND DISCUSSIONS

1929

NATIONAL CONFERENCE ON CITY PLANNING
NEW YORK

Em. Gasset

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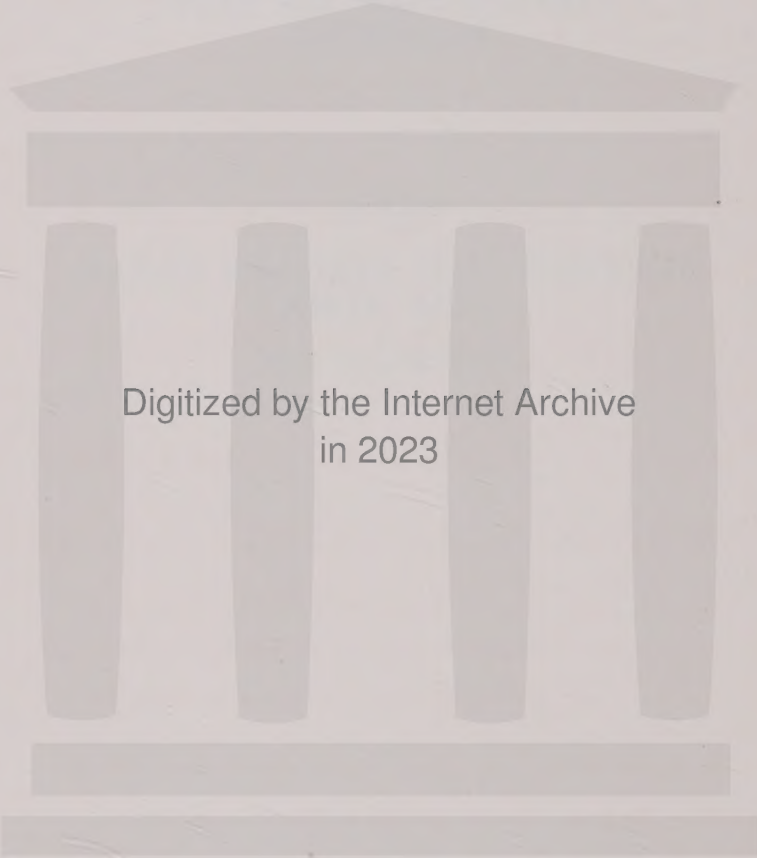
PAPERS AND DISCUSSIONS
AT THE TWENTY-FIRST NATIONAL
CONFERENCE ON CITY
PLANNING

HELD AT
BUFFALO AND NIAGARA FALLS,
NEW YORK

MAY 20 to 23, 1929

Published for the Conference by
WM. F. FELL Co., PHILADELPHIA, PA.

MCMXXIX



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SOME PROBLEMS IN NEW PLANNING

LOUIS BROWNLOW, Municipal Consultant, City Housing Corporation,
New York City

The problems presented by new planning for towns and cities and regions are so numerous, so complex, so intricately interlaced with all the other problems of our modern life, that to attempt even so much as to catalogue them would prove a difficult task for the technical town planner and the result would be nothing to the layman but a dismay and a hopeless horror. Being myself a layman and not a town planner, for the purposes of this paper I shall select but a very few of the problems that at this time may interest both the technician and the layman, and in discussing them confine myself to the experience, realized and impending, of Radburn. I indulge the hope that in the discussion to follow light may be thrown upon these and related problems from the experience gained in other places.

It seems necessary, therefore, since I am to draw upon Radburn for illustrations of the few problems I am to outline, to give in a few words the setting of the Radburn scene.

Radburn we call the town planned for the motor age. It is a town only in the sense that it is, or will be, an urban community. Politically, it is a part of the Borough of Fair Lawn, in Bergen County, New Jersey. Geographically, it lies within the North Jersey sector of the metropolitan region of New York, quite near the industrial cities of Paterson and Passaic, the residential city of Hackensack and the suburban town of Ridgewood. Topographically, it is situated on rolling land within sight of distant hills, and lies from fifty to a hundred and more feet above sea level. Historically, it has been the home for nearly three centuries of a sturdy folk of Dutch origin, the influence of the Hollanders having been kept fresh in each generation by new immigration from the

Netherlands, and two of the principal fixed highways which we found ready-made to our hand in Radburn are plainly to be seen on the maps prepared for General Washington by the geographer of the Continental Armies. Socially, the background has been entirely agricultural, the community life finding its home in the Grange Hall, the accepted standards being highly individualistic and the contacts with New York very largely only through the economic nexus of Gansevoort Market.

The historical and social background is of little account in considering our present problems, except for the prime fact that it is responsible for the wide expanse of farms cut only by a few widely separated narrow roads, leaving this tract here, within fourteen miles of Times Square by air line; within seventeen miles of the Jersey City Terminal of the Erie by railroad, and within ten miles of the Jersey end of the new Hudson River Bridge, a virgin territory upon which a new town plan might be laid with a minimum of difficulty in adjusting the scheme to existing streets and structures.

This, then, was the site selected by City Housing Corporation upon which to build its new town planned for the motor age. It is unnecessary here, I am sure, to say that City Housing Corporation is a limited dividend company formed five years ago by Alexander M. Bing and a group of associates for the purpose of building better homes and better communities, or that its first experiment at Sunnyside Gardens in Long Island has proved a success. Mr. Bing, his associates and his advisers, were, I believe, inspired by the example of the garden cities of England and desired to do something looking in that direction within the New York region. Here the permanent agricultural belt was not practicable and Radburn is not to be, in the strict sense, a garden city.

Radburn will occupy the lands purchased by the City Housing Corporation, two square miles; and probably will extend in influence if not in precise pattern to the adjacent lands owned by others. It is to be a city of from 25,000 to 30,000 people.

So the scene is set.

The persons of the drama have been assembled by City Housing

Corporation. Responsible for the enterprise, its financing and its major decisions, are Mr. Bing and the Board of Directors. Clarence S. Stein and Henry Wright, architects associated, are the town planners. They have had as consultants Frederick L. Ackerman, Robert D. Kohn, and Thomas Adams. To carry the whole into execution City Housing Corporation has its own staff of administrators, construction executives, engineers, lawyers, and the like. Many experts in the field of municipal government, recreation, health, education, and so on have been consulted. To attempt to apportion among so many the responsibility for particular features of the plan, physical or community, is not within the scope of this paper.

From amongst the maze of problems presented in Radburn or encountered there, I shall select but three to talk with you about. First, the street and park pattern; second, the division of the town with respect to use, residential, commercial and industrial; and third, the governance of the town and its community organization. No one of these can be exhausted nor all of its implications considered: I shall give but the bare bones.

I. A PATTERN FOR STREETS AND PARKS

I do not know for what the checker-board street pattern was planned. Perhaps for the horse and buggy. Perhaps for the convenience of the engineer. Perhaps for the handiness of the 25- by 100-foot lot. Perhaps it just happened. At any rate it is the conventional and usual pattern for streets in our American towns. Its relation to the pattern for park lands is usually incidental.

In Radburn, to be planned deliberately for the motor age, two things were chiefly to be desired: first, the maximum convenience for the use of the motor car for business and pleasure, and, second, the reduction to the minimum of the dangers attendant upon such use. Consideration for the health and happiness of the people who were to live in the houses also brought the problem of the provision of park spaces into the foreground.

To a town, the street system is both the skeleton and the cir-

culatory system. The street itself has many functions, above, beneath and on its surface. But aside from drainage, its principal surface functions are three in number. Two of these are ancient, classic and first to come to mind when one hears the word "street." They are the functions of traffic—traffic awheel and traffic afoot. Usually we separate the parts of the street devoted to these two functions; run a raised ribbon along either side of the street, call it a sidewalk, and devote it to foot traffic; pave the wider strip in the middle and devote it to wheeled traffic; however, mingling the two at intersections some sixteen or eighteen times in a mile. When urban land is intensively used, the surface of the street has a third important function, and we have found no way to separate a part of the street for this new use. It spills over the sidewalk and the roadway. It is play. Play in the streets is dangerous to children and an impediment to wheeled traffic and the attempt to use the same space for both brings tragic consequences into thousands of American homes every year.

At Radburn, in its residential portions, the planners have re-distributed the functions of the street, they have made a new segregation of street space, and they have re-arranged the relation of street space to park space.

Essentially the scheme is based on the use of a unit which, for lack of a better name, we call the super-block. The super-block consists of a central core of open park land rimmed by a public street devoted entirely to foot traffic or play, this core being surrounded by a series of lanes or culs-de-sac, short streets devoted entirely to wheel traffic, closed at the interior end, but open to and connecting at the outer end with the wide highway which surrounds the whole super-block and which is again devoted exclusively to wheel traffic.

The houses are grouped around the lanes, so that each house fronts upon two streets, one a relatively wide street for wheel traffic and the other a quite narrow street for foot traffic. The great motor highway surrounding the whole super-block sends its tributary streets inward toward, but not to, the park core; the

footway rimming the park sends its tributary sidewalks out to the outer rim.

The central park core and its rimming footway send out arms to the boundary, and there the footway and a ribbon of parkway dive under the motor highway through an underpass to connect with the park and footway system of the next super-block.

In this manner the footways and the motorways are quite separated. Groups of these super-blocks in their turn will center about a school and playfield as the focal point, and to this school and playfield any child may walk from his home in comfort and in entire safety, so far as the threat of the motor car is concerned. And yet each house has its motor street, too, and most of them have a garage built into the house, as much a part of the house as the dining room.

This means that instead of grouping the park lands according to any usual manner, they have been distributed throughout the residential parts of the town.

The effect may be observed from the angle of the householder. He has two fronts to his house. One gives upon a public street dedicated to the municipality and devoted to wheel travel. The other opens upon a public street, also dedicated to the municipality, but devoted to foot travel. He will not be, in any case, further away than four hundred feet from a principal motor highway. And he will not be further away, in any case, than four hundred feet from a park. The closer he is to one the farther away he is from the other, of course, but it is never more than four hundred feet.

If for any reason his child plays away from his own yard, whether for companionship, for leadership, or just for fun, the child has a place to play in the park and on the footway where no motor vehicle can menace him. If he plays in the motor street and gets run over, it will not be because no other place has been provided for him.

I am bold enough to predict that the planners in Radburn have opened the way for a revival of pedestrianism as a pleasant form of exercise. Think of taking a walk in town today—step down from this curb, wait minutes for the traffic signal to change or else

dart out amongst the speeding cars, up on the curb on the other side, and then repeat, sixteen or eighteen times a mile at each inter-section. In Radburn one will be able to take a walk, say in another year, and stroll for some miles on a sidewalk without ever stepping down from a curb or up onto a curb and without ever being in a place where a motor car can be—and all the time on a public street lighted by public lighting but bordering not a wheel traffic roadway but a park.

That such a radical departure from the conventional street pattern had an interesting effect on house design follows as a matter of course. The house has two fronts, no back. It has two front yards, no back yards. It has two principal entrances—a motor entrance and a pedestrian entrance. These things have improved the opportunity for designing small houses in groups for the wider vision and at the same time have added to the opportunity for design for each house seen as a single unit. That the architects and builders already have taken advantage of many of these new opportunities for the moderate priced houses that have been built in Radburn is evident to the visitor at the first glance.

This new street and park pattern has justified itself also on the score of economy as well as with respect to safety, convenience and beauty. The scheme requires less land for the streets than the conventional checkerboard and the land thus saved goes far toward providing the park space. The grouping of the houses tends to shorten the lines of the utilities, thus introducing further economies, so that we may say that the new pattern saves rather than spends.

II. COMMERCE AND INDUSTRY

Thus far I have talked only of the residential sections of Radburn. Radburn is planned for a population, on the land now owned by City Housing Corporation, of about 25,000 people. In a sense it is designed as a satellite city. It is not to be, according to plan, a mere dormitory for New York and for the neighboring cities of New Jersey, but is to have its own commercial and industrial

sections, and to be, as far as is possible, a self-contained town in which workers may live near their work. At the southerly end of the town a definite reservation for industry has been made, although as yet only one establishment has been built there. The planners have been at pains to relate that industrial section to the other portions of the town by adequate highways and will provide suitable housing for workers not far away.

The commercial needs of the town are to be provided for in local community shopping centers, in sub-business centers, a part of one of which already has been constructed, and in a central business area related to the civic center of the entire town.

Definitive plans are not so far developed for this chief center as in the case of the residential portions of the town, but certain things are to be provided. One of these is open space, both in wide streets and in parks. Another is the convenient approach by traffic ways to local business places without interfering with rapid through traffic. And another is to find in a measure the soothful answer to that deep and passionate longing of the modern American; he who sings:

"This is the place I long have sought,
And mourned because I found it not:
—A place to park!"

Here again the use of the interior of the block in a new relation to its perimeter will, we believe, be useful, economical and not ugly. The business blocks will have a central core of parking space or garage space, bringing parking close to the store, as in the residential area the green park was brought close to the home.

There is no zoning ordinance in the Borough of Fair Lawn, and therefore the use of the police power to control the uses of property is in abeyance.

In Radburn it is planned, for the present at any rate, to accomplish zoning by contract. The restrictions in the deeds of houses sold as residences and the restrictions to which the whole lands, park and otherwise, in the residential sections are subjected, forbid the use of the land for any but residential purposes.

Sites for industrial purposes have been sold and will be sold subject to certain restrictions as to the type of industry—excluding the nuisance types—and subject to certain architectural control and community obligations.

Commercial property—stores and the like—will not be sold but will be retained by City Housing Corporation as an investment, and also because this is the only means that has been suggested for effectively controlling the number and type of stores.

Commercial property of other kinds—such as office buildings for public utilities and the like—will be sold subject to restrictions which in sum amount to zoning by contract. Such a system of use zoning requires, of course, much thought and makes a heavy draft upon the pre-vision of the planners. On the other hand, it admits of a refinement of zoning that under the police power might very well be questioned in the courts as being too arbitrary.

So here again, in this field of zoning-by-contract, there seem to be possibilities for increased convenience, decreased costs and added beauty.

III. GOVERNMENT AND COMMUNITY ORGANIZATION

Another of the many problems which we have considered is that of local government and the organization of the community life.

Radburn as a city of 25,000 people is perhaps ten years in the future. A year ago it was, except for some lands bought, some money risked and some blueprints, altogether in the future. At the present moment, however, Radburn is in being. About two hundred single family houses are under construction, half of them nearly completed. A store and office building is almost finished. There are some miles of streets and footways, of water pipes, sewers, gas mains, electric lines, and the like. Parks and playgrounds are nearing the stage of usability.

In short, on what were last August nothing but fallow fields now there is a town in sticks and stones.

As yet it has few people. There are a few pioneer families already living in Radburn, almost before we were quite ready for

them. To these people and to those who come after them, Radburn is not a housing project nor an essay in town planning. It is a town in which they have bought a house in which to make a home. From their point of view the municipal housekeeping problem is both imminent and immanent.

They are the beginnings of a living social entity which will be known by the name of Radburn. Politically, they are citizens of the Borough of Fair Lawn, and after the necessary time of probation, will be voters in Fair Lawn. The borough has an area of a little more than five miles, about one-third of which is Radburn. (The Radburn property extends also into two other boroughs, Glen Rock and Paramus, but most of it and all that presently being developed is in Fair Lawn.) The borough has a population of about 5,500, and nearly 2,000 votes were cast in the last local election, an indication of a lively political interest. The government under the Mayor and Council has been very friendly to the Radburn project, and this spirit of co-operation seems to actuate all factions and parties of the local community.

But a borough so largely rural could not provide at the beginning the full measure of municipal services required by Radburn. It is to be borne in mind that when we undertake to build a planned city such as Radburn on an urban scale on land that heretofore has been entirely agricultural, we accelerate the normal process of evolution by telescoping through two well-defined stages—the semi-rural and the suburban.

In Fair Lawn there was no public water supply, no sewage system, and but meagre provision, according to urban standards, for police and fire protection, health service, and the like. In the field of education the situation was much better, a good school system being provided.

For the protection of the property and for the nurture of the community life, several things had to be provided. One was the machinery for enforcing the protective restrictions of the deeds, giving architectural control in the community interest, use-zoning and so on. Another was to supplement the municipal services

being provided by the Borough so as to meet the needs of the more intensively developed Radburn section. The third was to provide certain services not yet within the scope of the municipal activities.

To accomplish these purposes, The Radburn Association, a membership, non-profit corporation, was set up. It has accepted the responsibility of enforcing the restrictions incorporated in the deeds and the declarations of restrictions. It has taken title to the park lands to be held for the use of the people of Radburn. It has undertaken to provide supplemental municipal services—as for instance in the case of garbage, where the municipality provides one collection per week and The Radburn Association supplements it by another, giving twice a week collection.

Much study was given to many instances of such government by contract as exist in various parts of the United States and many ideas previously tested were incorporated in this system, which I think is most interesting.

At the beginning The Radburn Association consists of nine members, part of them members of City Housing Corporation and its staff and part of them representative civic leaders of northern New Jersey. Eventually the power and responsibility of The Radburn Association will be devolved upon the residents of Radburn, but we have not attempted to say in advance exactly when nor in precisely what manner.

The Radburn Association derives its revenues from a charge fixed annually by it upon properties in Radburn subjected to the declaration of restrictions, but which charge can never exceed one-half of the taxes for public purposes. The rate is fixed by the Association and the base used is that of the assessment by public authority for public taxation.

In form, the Association is modelled upon the council-manager plan of municipal government, the policy determining function and the fiscal control being in the hands of the members of the Association acting through trustees chosen by them; the administrative and executive functions being discharged by a manager chosen by the trustees.

Here then is an attempt to solve a problem that has vexed almost every municipality in the whole country. The problem has been stated succinctly in this form: "How can a neighborhood within a municipality carry on a more advanced form of living than the municipality as a whole is ready to afford?" The answer often has been a dejected negation. It often has been an unfair and unjust favoritism which has been both the cause and the result of municipal political corruption. It sometimes has been achieved by means very much the same as we have attempted for relatively small, high-class residential sections of cities. By means of The Radburn Association it is hoped that a just and equitable balance may be struck between those services that the entire municipality affords and those augmented or more advanced services which the urbanized section of Radburn requires.

It is also the concern of The Radburn Association to foster the organization of the community life in such manner as will best, in conjunction with municipal, county, state and national government, promote the health, the education, the prosperity and the happiness of the people of Radburn. Operating side by side we shall see two schemes of government by consent of the governed—in one the consent being expressed through the ballot box and in the other by acceptance of a deed to land. I believe they will supplement and complement each other, and that one—government by contract—will be a proving ground for more advanced services for the other—government by ballot.

At any rate these things have been begun. Radburn was a dream. Radburn is being realized as a reality. Just now, toward the end of the first year of a program of building that will require from eight to ten years, Radburn is partly a dream, partly a plan, partly a reality, partly a pattern in materials, partly a community of souls. But Radburn is more than this—it is a challenge. In Radburn the town planner has dared and the builder and financier have enabled him to do this thing: To prove in a living city that *Design and Control* will make for greater health, greater convenience, greater economy and greater beauty than ever can be realized by *Drift and Complacency*.

DISCUSSION

JOHN NOLEN, Cambridge, Massachusetts: Radburn has been called "the town for the motor age" but it seems to me much more than that. The motor, after all, is only a symbol of a mechanical age. Radburn is rather a town for the human needs of this age. It seeks quiet and repose. Its objective is efficiency, economy, better organization and beauty, a quality which we have often been rather loath to mention in these planning conferences.

The greatest achievement in Radburn and the one that makes possible a consideration of all others, is that a client has been found willing to trust to the lead of designers who are proposing new ways of doing things. The City Housing Corporation with Mr. Alexander Bing as President has, along with practical experience, that faith and imagination which are essential in this new kind of town planning. There is a line which says, "'Tis time new hopes should animate the world, new light should dawn for new revealings." After all, as Coleridge said, "Experience is like the stern light of a ship at sea; it enlightens only the track which has been passed over."

I have selected a few points out of Mr. Brownlow's summary for special comment. First, the cul-de-sac: This has been used before, but not always approved. I believe in some cities it is forbidden. It has been considered unsafe and I could name the subdivisions in which it has had to be abandoned by the owners, wisely or unwisely. In Radburn it is used more skillfully and in more wholesale fashion than I have ever known. Whether it works as one of the essential planning devices for a residential community, we can tell only after more experience. I am for it myself.

The interior block and playground have long been under discussion by professionals and laymen and all the arguments, physical, legal, economic and administrative, have been weighed. The Radburn builders have a complementary scheme in which the interior block and playground have been well incorporated.

Zoning by contract is a well-tried and successful method for the regulation of private property by means of deed restrictions. It raises the question of how far municipal regulation by zoning ordinance is necessary in new towns. In Mariemont and Kingsport and other places with which I have been very familiar, zoning in the legal sense of municipal regulation under the police power has never been thought necessary.

The ownership of stores by the City Housing Corporation is, I believe, one of the soundest principles of economics and design, but it ties up capital and has some other disadvantages.

Radburn prompts several interesting and important questions. If we are going to build new towns as a part of our regional planning and development, where are they to be and how are they to be located? Can we take, by eminent domain, land for new towns on the theory that it is taken for a public purpose? How can large funds be secured from great corporations like insurance companies, for the building of Radburns? Can the very difficult problem of the housing of the very poor be solved in developments like Radburn? Can we find other groups of practical idealists willing to put into community planning, for a return of 6%, such an amount of not only money but of effort, skill, even genius, and take a risk which, in other fields of investment, would yield far greater returns? Can Radburn be repeated not only in the environs of Philadelphia, Chicago, Boston, Buffalo, but even outside of smaller cities like Niagara Falls?

KAI HENDRIKSEN, Copenhagen, Denmark: Planning for social welfare and traffic safety must always be looked upon with great satisfaction. This was a principle that prevailed in bygone days but which in the last three generations, mainly on account of rapid technical development, has somewhat disappeared. We have not seemed to be able to give our modern towns a design which fitted entirely new conditions. This, it seems to me, is one of the achievements of Radburn; from the beginning of the general plan right down through the minor details, earnest consideration has been given to social welfare. The most impressive aspect will no doubt be what has been called the safety street plan combined with a strikingly well-arranged park and playground area placed in the middle of the super-blocks and connected with underpasses so that residents, both adults and children, can walk for several miles without interference from motor traffic.

One of the striking results is the great saving in running road length which has probably been an important item in keeping housing cost low. Strange to say, our latter-day street layout generally made by practical economists has in fact been very impractical and uneconomical. In Copenhagen we are trying to persuade the subdivider that much of the roadways laid out recently are useless, and we have come to the conclusion that

almost 20% of the running roadways in a region of about 200 square miles about Copenhagen is superfluous.

In Radburn the motoring resident has real motor roads for the drive home. The commuter has ample choice of beautiful paths to his doorway in perfect safety from motor traffic. To this must be added the pleasing effects of house groups in the closed-in streets, particularly as seen from the footways to which the house frontages are turned. The backs of the houses are turned properly to the closed-in streets which thereby become service roads leading directly to each garage. Altogether I think the Radburn developers have conceived the design of a town which will be admirably suited to all the main features of modern living conditions.

L. SEGOE, Cincinnati, Ohio: I should like to know whether all of the land at Radburn will follow the pattern which is illustrated in the present developed area. Regardless of the splendid layout of this particular unit, and the design that is based on the thorough consideration of the needs of this age, I am afraid that a repetition of this pattern may result in a town which will be just as dreary in its entirety as the checkerboard pattern with which we are all familiar.

MR. BROWNLOW: Radburn's 1,300 acres are bounded by a railroad on one side, a parkway on another, an industrial district on another, and a proposed parkway on another side, so that it is set off in a measure from surrounding developments. I think that in getting away from the rectangular plan we are not motivated by the desire to substitute a more esthetic street pattern, but rather a more utilitarian one. It does work out, however, that the houses are seen as groups, as Mr. Hendriksen pointed out, and this feature lends attractiveness. The houses will be built to sell from as low as \$6,000 to as high as \$30,000, each depending upon the location and size of the plot, and since we are planning for a city of 25,000 people, there will be types of communities and in that way some variety may be achieved. But the street and park pattern with separate foot and wheel ways will be the same for the entire tract.

(In answer to other questions) Fire protection is most effected by the locating of hydrants at the entrance and at the foot of each cul-de-sac. This plan gives between 40 to 45 percent more coverage for the same amount of hose length than in the rectangular street system, where there is a hydrant at each corner of a

block 200 x 400; it also gives us an opportunity to fight fires between each lane of houses. In any emergency a fire truck can come down the footway, which is ten feet wide, and is a public way.

I can only give you the entire street area whether paved or unpaved. In these two super-blocks the total amount of the usable area that is devoted to streets, footways, parks and schools, is 28%, or only about what in a rectangular street system the streets alone would take.

THE DEVELOPMENT OF OUTLYING SHOPPING CENTERS

J. C. NICHOLS, Kansas City, Mo.

The central retail business areas of our cities represent the highest real estate value of the community. Every effort should be made to stabilize these values and promote the further development of these areas. More scientific methods of handling automobile traffic, provision of increased automobile parking areas, the creating of wider streets, the by-passing of unnecessary traffic and the best possible development of trafficways, streets and boulevards to relate these downtown areas to the whole city should receive the most careful consideration of everyone interested in his city's future. These central business areas should forever remain the dominating business section of every city.

There are many factors, however, which are contributing to the rapid growth in number and size of outlying shopping centers in practically all our cities throughout the country. This development not only represents a certain evolution in trade in response to certain changed conditions, but it also denotes progress and growth in our cities. In recognizing the rapid growth in number and size of outlying shopping centers it is well to consider the many factors contributing to this growth. Among these influences are the following:

First. The congestion of the streets of the central business areas by automobiles. These streets were not, of course, designed to provide for present-day traffic needs and regardless of the building of multi-story garages, the use of roofs for parking stations, the use of underground storage, the by-passing of certain traffic, the building of elevated and subway traffic ways, it is not likely that this congestion can be fully relieved.

Second. The increasing volume of suburban and tourist trade entering the city by highway rather than by the railroads naturally concentrates quite a percentage of such trade in the outlying shopping centers. A few years ago practically all this out-of-town trade entered the city through railroad stations and naturally gravitated to the central business district. As a matter of fact, in many of our cities, state, county and national highways are being routed so as to by-pass the central business centers in order to relieve congestion. This very by-pass, however, tends to direct a large part of the trade from such travel into outlying business centers. The great number of outlying transient hotels is evidence of the movement of certain trade into outlying regions of a city.

Third. The development of aviation will largely have the same influence upon out-of-town trade in that most municipal flying fields will be located in the outlying area of a city and the trade from such travel will frequently be more accessible to the outlying business centers.

Fourth. The advent of picture shows has moved much of the night life from the downtown centers to the residential areas. The day-time patronage of such picture shows influences a large number of the city's population from going downtown to trade. This is evidenced by the large number of shops supplying at least neighborhood trade, which generally spring into existence surrounding an outlying picture show. The legitimate theatres in most cities are not drawing their former large patronage having lost quite a percentage of their patrons to the outlying picture houses.

Fifth. In most cities a few years ago the large apartment houses, family hotels and kitchenettes were built in sections fairly close-in to the central business areas. Recent years have seen the spreading of much of this character of development to the outlying regions of the city, thereby concentrating population in outlying centers and supporting outlying shopping developments.

Sixth. The rapid and convenient transportation afforded by the use of automobiles has brought about a greater scattering of the

city's population, often removing the centers of population to distances quite remote from the central business area and thereby contributing to the growth of outlying shopping centers.

Seventh. The rapid development of chain stores is also gradually promoting the development of outlying merchandising centers. Where formerly in many cities large department and specialty stores enjoyed a very large percentage of the trade of the city, recent developments have spread a certain amount of this trade through chain stores into many locations throughout the city, particularly into the outlying residential areas. While this was at first largely confined to chain neighborhood grocery stores, drug stores and other institutions supplying immediate neighborhood needs, the last few years have seen the introduction, into the outlying business centers, of such large retail merchandising institutions as Montgomery Ward, Sears-Roebuck and stores of the character of Marshall Field and a great number of shops handling women's wearing apparel, men's furnishings, furniture, and many other such general enterprises.

Eighth. Recent years have seen the spreading of a large population of most cities into the rural areas beyond the city limits and strictly suburban districts. Automobiles, good roads, Delco electric light plants, individual sewage disposal systems, electric refrigerators, and other modern day conveniences, are making it possible for people to live many miles beyond the city limits and still work within the city. This is developing a large population whose trade naturally gravitates to the outlying business area of the city.

Ninth. In addition to this movement of institutions doing a retail business to outlying business centers, recent years have seen an outward trend of many office organizations, such as insurance companies, engineering firms, oil companies, and also physicians, dentists, and other professional men into outlying business centers.

Tenth. Where formerly the street car systems of most cities concentrated upon the central business area as their hub, we today have a new condition in the wide-spread use of bus lines, quickly

shifting the flow of traffic and in many instances directing this traffic more conveniently into outlying regions.

The rapid growth in number and size of outlying business centers is self-evident in every city, and the problem that confronts the planners and students of city growth is the proper direction and control of these outlying centers. In many cities little thought is being given to their development because the growth has come about so gradually it seems inconsequential in the beginning, and their ultimate importance is not fully realized. In the beginning there may only be a filling station at the crossing of two important trafficways, followed by a hot dog stand, a tourist park, or refreshment parlor. During the first few years there may be added only a few stores doing a small and neighborhood business. Generally no effort is made to widen the streets in such a center while it can still be done at small cost. These centers spring up at so many scattered points throughout the outlying area of a city that at first generally no one of them promises a growth that commands the attention of municipal authorities. The very character in the beginning of such developments is not usually ambitious and is often characterized only with small, temporary, unsightly one-story frame buildings with a lack of harmony of architecture, height line, or uniform set back from the curb. Gradually better and more substantial buildings are erected but still with little effort to plan these centers for future needs. As a result throughout the land the present-day congestion problem of our central business areas is being repeated in scores of outlying places throughout every large city. While it is still not too late the foreplanning of these outlying centers should command the attention of every one interested in proper urban development.

The influences which have been enumerated are increasing rapidly and many outlying centers which are still comparatively small promise to ultimately cover large areas and command trade from wide sections of the city. In many cities the progressive enterprising merchants of the central business sections are recognizing this rapid growth and are meeting the changed conditions

by establishing branch stores in these outlying sections. In most zoned cities a far too large amount of land has been zoned for business, permitting a very wide scattering of property for business uses throughout the residential areas, thus depreciating the residence districts and not helping the business. A reasonable balance of business lots and no more is required for the service of the public. The counts of the Regional Planning Commission of Chicago show that there is approximately half of a front foot of land occupied by ordinary business per capita of population. Mr. Cheney's counts of Pacific Coast cities arrive at a similar conclusion. Or he puts it another way in saying that about 5% at the most of the frontage of the city will be occupied by business buildings according to actual counts. It is therefore unnecessary, and particularly inappropriate, for high class residence neighborhoods to establish more than some such percentage of frontage in business lots. In the Country Club District we have set aside very much under this proportion of business area.

This naturally increases the problem of planning street widths and size of blocks and lot depths to serve such a widely scattered business use of property.

Certainly the present-day conditions under which many central business areas are laboring justify a determined effort to avoid the repetition of these conditions in outlying business areas and the proper control of these many scattered commercial developments is perhaps almost as important from the general appearance of the city as the proper control of the central business areas. If they are disorderly and unattractive in appearance, it mars the physical beauty of the city as a whole and carries ugliness into the adjoining residential sections.

We must deal not only with the traffic needs within these outlying centers, but their rapid growth vitally affects the outlying traffic arteries of the city leading into and from these business centers. In many cases the rapid growth of these intensive outlying shopping areas increases the load on water, gas and sewer mains, entailing large expenditures for revamping these public

utilities to serve an unforeseen need. The routing of car lines, the location of schools, hospitals, fire departments and many other municipal and public utility services, are suddenly found inadequate and entail great cost in readjustment to meet the new conditions. Wise foreplanning would save enormous adjustment costs.

As a striking illustration of the growth of these outlying business areas we recently made a count of the number of stores and offices in Kansas City's south side residential area. South of a line approximately two miles south of the central business area, where ten years ago there were approximately 200 stores only in this entire region, today we found 2,189 retail stores and offices.

Is it not time that this whole problem be given more serious consideration than that afforded by the general zoning law of our cities? Should we not arouse our public officials to planning for the proper development of these outlying centers to better serve our future needs?

In the building of a number of outlying shopping centers in the Country Club District of Kansas City we have endeavored to follow certain principles and establish certain rules and regulations.

In these neighborhood business centers we have under control a large part of the land involved and in the tracts we have sold we have been able to stipulate certain building restrictions as to type of architecture and use of buildings. We have also handled practically all the leasing of space in buildings erected in this center, enabling us to control the type of business, and an appropriate grouping of related shops. On land in or near the centers we have not controlled we have been fairly successful by persuasion and example in securing cooperation from the other owners. We submit the following for discussion:

- (1) Any street in an outlying business center should probably not be less than 100 feet in width, with paving width of at least 60 feet on the minor business streets and not less than 72 feet on the major traffic streets passing through business areas. We have found that 60 feet is about the minimum width for the diagonal parking of cars on both sides of the street and still permitting

movement of three lines of traffic between the rear ends of such parked cars. A careful count shows we handle about $2\frac{1}{2}$ times as many cars with diagonal parking as compared with parallel parking. We also find that the movement in and out of position with diagonal parking is much more rapid than with parallel parking. There is a possible objection to diagonal parking from cars backing into traffic, but we believe that this disadvantage is much less than the advantage gained by the increased number of cars possible with diagonal parking and the more rapid movement of cars in and out of position. After a number of years' experience we believe that the number of accidents has been less in the use of diagonal parking than in parallel parking.

(2) We recommend the provision of loading and unloading courts in the interior of the business block wherever possible so as to relieve the front streets from delivery uses. Certain types of delivery trucks are not only of immense size and absorb a large amount of space but they contribute litter and disorder to these streets. Then, too, deliveries at store fronts unnecessarily contribute to the misuse of sidewalk areas and cause danger to pedestrians.

(3) Where blocks are not of sufficient size to create interior loading courts we believe that alleys should be of sufficient width, possibly a minimum of 26 feet, to provide at least one line of traffic with trucks standing on both sides of the alley. We believe in the long run the setting aside of certain space for interior loading courts or wider alleys is more important than using the maximum amount of lot area for building purposes.

(4) We suggest the largest percentage of street area possible in proportion to the land occupied by buildings. In one of our outlying developments known as the Country Club Plaza area we are dedicating approximately 50% of our land for street purposes. This reduces the percentage of land available for building occupation and to that extent tends to solve the parking problem. Shorter blocks make quicker movement of trade from one part of the center to the other and give greater percentage of curb area for parking

cars. Many developers question the introduction of so many street intersections as injurious to the continuity of trade. We realize there is a grave problem in creating a traffic hazard for pedestrians with increased number of street intersections. We have endeavored to meet this latter objection by the installation of pedestrian safety islands about 5 feet by 9 feet in size at these street intersections. These isles of safety not only afford a chance for the life of the pedestrian in crossing broad streets but also tend to regulate the proper movement of vehicular traffic and slow down the rate of speed of such traffic.

When you break an outlying business development into small blocks, it enables you to congregate more harmonious groups and better related stores, each small block affording a better mutual trade pulling power than is obtained in a large block where it is necessary to introduce certain types of enterprises that are not so advantageous to the trade of their neighbors. There is a distinct advantage to merchants on one side of a block in being able to pull trade from the opposite side of a block when the distance is comparatively short as compared with the difficulty of attracting such trade clear around a long block.

(5) In the beginning we thought it advisable to by-pass through traffic as much as possible, leaving our streets available for the cars of the patrons of the business center. We must admit that our experience in this has not been satisfactory. We had hoped that a shop slightly removed from the main traveled street would have a certain advantage in parking facilities that would more than offset the greater publicity possible to it on the main street. Up to the present time, however, this has not been our experience. It is extremely difficult for many types of merchandising to exist where the shop does not immediately face one of the main traveled arteries. This has been demonstrated over and over again by the immediate increase of trade of a merchant when we moved him from a side street location onto the main street. Personally I am very fearful that some of the beautiful plans that have been suggested for the development of outlying shopping centers will not

prove practical in the light of our experience. For instance, in a number of instances where shops have been grouped around an open park space, even with the main artery of the district passing along one side of the park, we are afraid that many of the shops in the group that do not face the main artery will have a hard time to exist unless the park or plaza be easily and well connected through traffic outlets in every direction possible.

We have come to this conclusion only after very long and earnest effort to pull the trade into locations off the main arteries. We recognize the difficulties on many long business streets where traffic moves at a high rate of speed. There is difficulty in pedestrians being able to shop from one side of the street to the other on such congested high speed traffic streets and yet I venture to say even in such cases that many types of shops located on such a high-speed trafficway would probably in most instances have an immediate falling off of its trade if it removed to even one location removed from the main artery. We suggest that the solution in such instances is an effort to slow down the rate of speed by the use of safety islands and the frequent use of stop and start signal lights. If you can send your traffic through such streets with alternating movement of groups of cars and periods of sufficient gaps in such movement so that the pedestrians can get from one side of the street to the other, we feel quite certain of the advantage in doing business on the important street. We realize, of course, that in many instances there could be an exception to this rule. This would be the case in a large amount of truck traffic going to and from industrial districts or any kind of traffic which would not carry possible patrons of the adjoining shops but we question the desirability of by-passing any form of traffic which has the possibility of carrying patrons by the front display window of a shop-keeper.

(6) We believe wherever possible it is wise to severely limit the height of buildings in an outlying shopping center. At the present time we have established a maximum height of two stories and really favor one-story structures, even though they do not present

as dignified and commanding appearance architecturally. Our experience over nearly ten years has shown that our income on one-story shops is much better than on two-story shops. We have studied the business centers in many of our large cities and have been astounded to find the large amount of vacant second-story space even in the 100% retail sections. We also found that as soon as any established business area begins to decline in any way that the second and third floors are often the first to suffer even in tall buildings. The majority of enterprises having large office organizations generally prefer an upper floor on account of light, air, sunshine, leaving the second or third floors available for retail or semi-retail institutions. We find it very difficult for merchants to pull the trade to the second floor even in a well-established center.

We also seriously question the desirability of tall office buildings within an outlying business center. As a matter of fact, we have recently refused to permit a 10-story office building in one of our outlying centers, believing that the disadvantages would far outweigh the advantages. Many of our merchants in this center, such as restaurants and drug stores and five-and-ten-cent stores, are exceedingly desirous of seeing us permit a large office population in the neighborhood to give them trade from people employed in the neighborhood. On the other hand we realize the loss of light, air and sunshine by the introduction of tall buildings. We realize the disorderly skyline that would be created, and more than all we feel that the all-day parking that would result from the occupants of such a building would immediately cause us traffic congestion and take away one of the main advantages obtainable in a carefully planned outlying business center. A careful count in one of our shopping centers shows that the average time that a patron's car is parked in our district is 20 minutes per patron. Assuming that the car of an office employee parked throughout the day would occupy street space for a period of eight hours we calculate that every such all-day parked car would absorb the space that otherwise might be used by 24 possible patrons of the shopping center.

It simply results in balancing the possible trade available from the employees of an office building as against that obtained from the patrons of the business center's trade territory. We feel that large office organizations should not be housed directly within the retail center but if possible should be placed well apart where their all-day parking needs would not conflict with the patrons' cars. Certainly if tall buildings are permitted, even with all the planning that may be provided, the time will soon come that traffic congestion will seriously menace the trade of the center.

(7) We believe that the massing of trade in closely associated blocks tending to radiate from one common center is better than the string street type of development of retail stores extending for a long distance on both sides of one street. As a matter of fact, the central business centers of most cities demonstrate this theory where the main retail trade of the town spreads over several closely related streets and does not confine itself to one street alone. It is much easier for a merchant to draw trade from customers visiting other stores a few blocks in all directions than it is to pull business from customers visiting a store half a mile farther down the same street. Then, too, we suggest there is far less injury to surrounding properties where several blocks of land devoted to business uses are massed together as a group as nearly square or circular in shape as possible than there is in the introduction of stores for a distance of a mile or more along one street creating offense and injury by the general unsightly appearance of the rear of such stores in view of the adjoining residential properties.

(8) In the development of outlying shopping centers every effort should be made to group shops which are naturally related. A hardware store is not conducive to helping the trade of jewelry stores. A *garage* adjoining a restaurant tends to drive trade from the restaurant. A tinshop or plumbers' shop does not help the trade of a ladies' wearing apparel shop. Wherever possible women's and children's shops should be grouped together. Building materials and supplies should be put in another group. Shops handling heavy merchandise should be placed elsewhere. Per-

sonal service shops, such as barber shops, beauty shops, and shoe-shining shops, should be placed together. If possible produce markets, meat markets and all provision shops naturally fall together. However, here again there is considerable question. A cash and carry grocery, for instance, draws a great many customers to a trading center while a furniture store draws comparatively few. For example, if you group a large number of enterprises such as furniture stores and piano stores together in one block you would have a comparatively dead area. While if you would place a cash and carry grocery store in a group such as this you would probably increase the trade getting possibilities of the furniture and piano stores in the block.

(9) And now to come to a thought which we believe to be one of the most important. Even though a business center be planned with wide streets, small blocks, diagonal parking, safety islands, low height buildings, exclusion of high office buildings and all the other things which I have suggested, it is still a serious question as to whether you have provided for the growing needs of auto parking space. Wherever possible we suggest that ample lands be set aside for the parking of cars. We have recently built two parking stations in our Country Club Plaza development for the parking of some 500 cars. We expended \$26,000 just in the beautifying of these stations. They are sub-drained, paved, lighted with underground conduits, and surrounded by a low stucco wall with tile coping of Spanish design. In every parking station there is, of course, considerable dead area in the corners and other places around the boundary of the station where cars cannot be parked. We have endeavored to utilize these spaces for planting and for the introduction of ornamental features; it being our thought that the parking stations should be made so attractive as to appeal to the public.

We realize that the habit of mind of every patron is already well established in the using of curb space for the parking of cars. We have made this parking space free to the public and still we must admit that people generally will not use the parking space until

the street space is all occupied. As soon as the curb space is full they immediately use the station.

One of the main advantages, however, of the parking station comes from the use by all-day-parked cars. In every lease that is made in this center a stipulation is written into the rental contract by which every employee and employer must park his car in the parking station. We retain the right to cancel the lease in the event any tenant fails to enforce this regulation. We feel that every time a tenant or employee parks his car in the parking station it frees curb space for 24 possible daily patrons of shops in the center. Our experience has proven that there are fewer accidents to cars in the parking station than at the curb. Our picture theatre crowds at night use the station in large numbers. The merchants in this center think the greatest factor in building business has been the ease with which people can park their cars. Customers will come to our center to trade rather than patronize another center nearer at hand because they feel sure of a place to park their cars in our Plaza section.

We suggest the introduction of such free parking stations in business centers in place of setting aside areas within the center for park purposes. We have endeavored to give these stations a park-like appearance from the outside by setting the walls sufficiently back of the street line to provide for the planting of trees and the placing of shrubbery. From a distance they look like parks. We believe that it is a practical combination of the utilitarian and the beautiful which is worth consideration. All the business houses grouped around such a parking station gain a wide view of their display windows and of course a greater amount of light, air and sunshine is afforded such shops. It gives a certain feeling of openness and attractiveness to the whole center. These parking stations perhaps have done more to give identity, and identity is almost as important as a good location in a shopping center, than any one feature we have incorporated in the development of this particular shopping district. We are not obligating ourselves to maintain permanently these stations free to the public

although we hope that we may increase rentals sufficiently as result of the benefit of these stations that they may be maintained free or perhaps in future years they may be converted into multiple story garages when the demand is sufficiently great.

(10) In the building of these new shopping centers, reasonable regulations as to the placing of billboards, of dangerous and unsightly overhanging signs, elimination of screaming advertising placards, hideous combinations of color, great scrawling, flaming advertising lettering across an otherwise pleasing store front or plate glass window, should be carefully considered. Their direct value to a merchant is highly questionable. Their injury to a neighboring shop is frequently great, and in the long run, the general good to any new shopping center presenting such unsightly, ugly appearance will give far greater value to each unit in the shopping center than any sacrifice suffered by a merchant in foregoing such practices. Store fronts should be attractive with maximum amount of plate glass. Your merchant must prosper and he should not be sacrificed too greatly to the demand of the architect for wide piers and large masonry areas, greatly reducing the window display space.

(11) Streets and sidewalk spaces in new shopping centers should be kept free of unnecessary obstruction. Pop-corn stands, sign boards, news-stands and other stealing of city streets and sidewalk should not be permitted. This not only assists in handling pedestrian traffic, but gives a more orderly appearance and is more appealing to the patrons.

(12) Too great a uniformity in store fronts perhaps may bring dull monotony. Sufficient variety can well be applied to give interest to a street scene and building fronts.

It may be well, wherever possible, to follow a general type of architecture in each group, one group having harmonizing Colonial types, another Spanish, another English, another French, and other good, general architectural designs. In this way, good appearance is given to a city's picture as a whole. Careful restrictions should be made as to changing of color schemes or building design of these

buildings. Control of design of buildings and of the use of buildings erected in such shopping centers should be as carefully safeguarded as is being done by restrictions on residences in high class subdivisions today.

(13) Street lighting and store front lighting should be studied in advance and given much more attention than has been the custom heretofore.

(14) There should be groups of shops for immediate local and daily neighborhood needs, in contrast to larger outlying shopping centers comprising stores of general needs to serve a larger territory. The center providing a few neighborhood units, such as retail grocery, meat market, bakery, drug store and beauty parlor, can well be placed approximately half a mile or more apart in densely populated districts to a mile or more in sparsely settled areas. From two miles or more apart, larger general groups should be provided, giving desirable locations for stores that can only prosper by serving a larger territory. Many enterprises can succeed with a comparatively small number of customers if they supply constant daily needs. Other types only supplying the occasional need of their customers must draw from a very wide area. As a matter of fact even in shops providing purely neighborhood needs we find it is quite difficult for many merchants to succeed until there are at least 15 or 20 lines of merchandise represented in the center so as to give a combined trade-pulling power for each merchant.

(15) Reasonable regard should always be had as to the appearance of the sides of shop buildings on side streets, the views of the roofs and even the rear of buildings where viewed from the store fronts or second story windows of adjoining buildings.

(16) Transition from outlying shopping centers to single house residence areas should be carefully studied and wherever possible a belt of park or playground areas, public libraries, churches, apartments or groups of attached houses should be introduced to gradually step up the character of the neighborhood and create less injury to the single home residence areas.

(17) The provision of certain very small open squares or plazas,

or space for fountains or a piece of statuary will add attractiveness and appeal to a shopping center as well as add civic beauty and adornment to the city as a whole. Grass, trees, flowers, shrubbery and garden ornaments can be made an integral part of new business centers as is so well exemplified in many European cities.

(18) Any outlying business center is influenced by the ease with which customers can come to and from such a center to trade. Certainly it is unwise to develop a well planned outlying group of shops and give no consideration to the approach from the surrounding areas. Every effort should be made to develop the proper arterial approach from all directions. A large outlying shopping center greatly increases the amount of traffic on certain through streets and every municipality should give consideration to the future needs of such streets where traffic will be greatly increased by the rapid growth of one or more outlying shopping centers served by such streets. Before the cost becomes excessive these streets should be widened to meet future demands of traffic leading to and from such outlying business center.

American cities have a great opportunity in this growth of outlying shopping centers. It is possible to make them distinctive and appealing in appearance, individualistic and attractive in design and layout, affording character and color to the general appearance of the city. Cleanliness and good order, a reasonable uniformity and harmony of design, height and elevation, will go far to make our American cities more attractive, more appealing and of unquestioned value to the people that live in these cities. Out of this order and cleanliness will come a practical beauty of great intangible value upon the spirit, patriotism and well being of any community.

DISCUSSION

CHARLES H. CHENEY, Palos Verdes Estates, California: The importance of local neighborhood business or convenience centers to all the outlying residential areas of any city is very great. Mr. J. C. Nichols has given us an able paper, summarizing the experience of the several local centers he has developed in a me-

ropolis of 500,000 people. There is no doubt that in the Country Club District of Kansas City he has built a suburb that stands up among the five or six foremost of this country, one that is notable throughout the world for its attractive tree-lined streets, its protective restrictive covenants, and the high character of homes and people that have been attracted there because of them.

These local business centers, and similar centers in all our cities, have been established almost invariably at important crossroads of traffic. To succeed, local stores must be where people can most conveniently get to them from several directions, in order to provide enough customers for profitable service. In questioning shopkeepers of these local centers in many cities during the course of zoning hearings, I find that most of them expect to get their trade within six or eight blocks of their establishment. Larger local centers will cater to and reach a much wider circle, but one still comparatively local to the center.

Through traffic coming from a long distance seldom has as much purchasing power as the local traffic. In fact, we seem to have an exaggerated idea of both the volume and importance of through traffic to local stores, except for restaurants, garages and oil stations.

In a town of 500 population, the only business center is at the railroad station, or bus station about the crossroads and about 250 feet of store frontage will actually be in use.

In a local center of 5,000 people, the 2,500 feet of store frontage needed cannot profitably shoestring out along just the two main streets which ordinarily form the crossroads that created the center, and will tend to spill over into side streets, with perhaps one or two nuclei of local centers forming in the outskirts.

In a city of 50,000 with 25,000 front feet of store frontage ordinarily necessary there should be already six or eight well-established outlying local centers.

In a city of 500,000 there will be found from 30 to 100 of these neighborhood centers, of variable size because they have been uncontrolled. There will also be a lot of falsely located and scattered store units, placed at inconvenient and therefore unsuccessful points by speculators who had little or no knowledge of the traffic necessary to store livelihood. These are the non-conforming uses of the belated zoning now being done in most of our cities.

Of course the number and character of local store centers will vary with the local characteristics of cities. Thus congested tene-

ment house cities like New York and San Francisco tend to develop local business centers at so many corners of street-car or traffic streets as to make the line of stores more or less continuous. Single family detached home cities like Los Angeles and many middle western cities have less need of centers so close together and business units are more likely to congregate at well-established crossroads much farther apart. There is the same danger of shoe-string speculators, however, unless proper zoning regulations clearly confine the location of business buildings to reasonably limited areas. This can be done either by private restriction or by municipal zone ordinance.

Zoning, in fact, is the most important foundation for the proper layout of local business centers. Concentrated centers are more successful than long-drawn-out ones scattered over a wide area.

Real estate developers who can control by protective restrictions several hundred or better several thousand acres of suburban development have a great opportunity to limit the total number of stores to something less than 5 per cent of the number of buildings anticipated in their district, thereby insuring the reasonable success of the businesses which come into the district. Mr. Nichols has notably provided for the needs of the Country Club District in Kansas City in this manner.

There is another real estate problem to be reckoned with in planning local centers, or rather there are two problems.

The first problem is to plan for and zone the best placing of the various businesses within and about the center, particularly so that as the number of businesses grows up they will be fairly permanently located. Garages, oil stations, tin shops, plumbing shops, dyeing and cleaning works and undertakers are not good bed-fellows for high class retail stores nor do they attract the same kind of customers; also they are almost always of the lesser rent-paying class which seek the outer fringe of older established business districts but will often crowd into prominent locations in local centers in a way to seriously deter needed high class retailers from coming in. Hence two kinds of retail business zones need to be established at these centers.

The second is to get the business centers started, to get any kind of business to locate there successfully and to get people in the habit of trading there.

The temptation to put off segregation of such businesses and fill up with anything that will "show activity" has been too great

among realtors, with the result that they often have thwarted their own opportunities for selling the last half of their business properties to advantage—and profits come only out of the sale of the last part of the tract. Oversale of so-called business lots to speculators, of course, is a much greater real estate evil, because the speculators seldom build themselves and hold the land out of use waiting for someone else to build and make for them the unearned increment. So the careful community developer of large calibre has both to zone carefully and sell cautiously, to develop a successful local center.

Another important consideration is the shape and location of local business centers. A center on a major traffic highway, reaching for several miles or far beyond the center (away from the downtown section) and carrying a heavy through traffic in both directions, needs open space for the local shoppers to get off of the highway and to turn into good parking space easily and safely. Thus an open square or oblong plaza, with the through traffic street going by at one end, is a common arrangement and a fairly successful one. If some of the main local traffic streets lead out of the other end of this plaza, the stores around it will do better.

If this local center is of considerable importance, say the biggest center for a distance of several square miles, the central plaza or open space may even succeed better if it is one block away from the main highway of through travel, with proper connections to it, so that the trucking and through traffic of small purchasing power can by-pass and leave the rich local retail trade to be freely and uninterruptedly served. The shape of local traffic centers may vary from an oblong to an octagon or even a large circle although too great a separation across the plaza will be felt by certain classes of stores. And, generally speaking, these local centers must build up very near the traffic center to be a success.

On state highways and important county highways the most recent trend is towards providing parallel service roads, shut off from the central highway by a curbed barrier of trees, so that through traffic will not be interrupted by the stopping and parking for local business, and local business in turn may offer convenience and safety to those who desire to stop and trade.*

This motor age must be planned for. The new town of Radburn,

* See "To Prevent the Choking of Highways by Rational Design and Effective Zoning," approved by California Highway Commission, in "The American City" magazine, July, 1929.

N. J., has made a distinct contribution to such planning in providing pedestrian walks in the centers of blocks, continuously from the business center to the school, with little or no crossings of highways.

The ugliness and inharmony of our local centers are due to the fact that no common predetermined plan, no control of architecture and of signs is provided. Here the developer on a large scale has a tremendous advantage for he can design his business buildings in advance of sale of lots, to conform to a common group scheme, make them subject to a competent permanent architectural board of review, which will yet allow the variations necessary to the use of the ultimate buildings to be erected.

Harmony of color in business groups is another most important factor. There can be little doubt that high class retail trade from a highly restricted residential neighborhood is sympathetic with a business district presenting a harmony of design and color, as well as good arrangement of access to the stores. If to this there be added a touch of quaintness, the use of the old world methods of arching the streets, arcading the sidewalks, etc., the district becomes notable immediately.

Such marked character comes, however, only from fine architecture designed by the most competent architects and city planners, with proper preplanning and reservations carefully made at the time the streets are dedicated, as has been done at Forest Hills, L. I., in the Roland Park District in Baltimore, and at Palos Verdes Estates in California. At the latter place the local business centers have each been assigned to a distinguished architect for life, who prepares preliminary sketches for the entire business group. Each lot is sold with the understanding that this design or modifications of it approved by him and the Art Jury will be built by the purchaser of each business lot. Here also arcading of all business buildings facing the plazas is a requirement, both in the restrictions of record and in the subdivision map. Proper control of architectural design can come only by setting up a permanent art jury or architectural board of review.*

Arcading of business buildings is a striking architectural feature which has much to be said for it in areas of great summer heat. If the arches of the arcade are high enough and the passageway deep enough, the stores at the back have little or no dis-

* See "Progress in Architectural Control," Proceedings National Conference on City Planning, Washington, 1927.

advantage. Most modern store fronts provide show windows with artificial light behind any way.

Control of signs to a dignified and appropriate size, scale, color and type of letter is a difficult job. Mr. Nichols has handled it very well at Kansas City, with good taste and with the cooperation of the business people affected. There has been in the past too much shoddy building with blaring signs that appeal only to the purveyors of hot dogs and the fly-by-night storekeepers with bankrupt stocks, who furnish such a large part of the business failures of the country. More solid requirements in the original building, such as masonry construction for all stores, group design, control of signs and color, will build sounder permanent investments, invite cheaper and safer capital and mortgage loans and contribute more to the ultimate development of the community.*

America is beginning to have some notably successful and strikingly beautiful local business centers so designed and controlled. One has but to pass through El Paso (the Street in Spain) in Santa Barbara, the Mizner Arcade group in Palm Beach, or the harmonious arcaded plaza at Forest Hills, L. I., to know what will shortly become a public requirement.

* See "Building for Permanency" in Proceedings National Conference on City Planning, Dallas, 1928.

*no national model
better legal requirements
its requirements and
private restrictions
for*

THE GOALS AND SNAGS IN REGIONAL PLANNING

THOMAS ADAMS, Director of Plans and Surveys, Regional Plan of New
York and Its Environs

One of the most pathetic things is the way some of us attend these Conferences and listen to words of wisdom on the assumption that we can take to our home towns the knowledge necessary to plan them. Every community is different and requires specialized expert treatment, and no study of general principles will enable any person to apply them to special situations. It would be like visiting the Ford Motor Works and selecting the particular part of Model A to use in renovating Model T. So every particular regional area has its problems, its own snags, due to local conditions, that must be studied on the spot by someone expert enough to analyze them and suggest the remedy. The problems of the Niagara Falls region have international complications which make them quite distinctive from those of New York or Los Angeles, and these differences which exist in physical detail and in government do not mean any less that the regions in themselves are not units.

In my judgment regional planning has reached the point now when it is going to be the biggest planning movement in this country because it is no longer appropriate to plan cities by themselves, and because of the essential unity between the problems of the central city and the surrounding municipalities. The regional plan seems to me to be the right form in which to create the master plan of the community. It isn't necessary to create a regional plan and a local master plan if we can develop in the future a science and an art of making a regional plan which will in itself be the master plan for each separate municipality in the area.

As a regional plan and a master plan, it will include much more

than the city or the village or the borough or the county can deal with. It will deal with the problems of the trunk line railroad and of the transit lines, as well as with the traffic ways, the highways, the parkways, and the sidewalks and the parks and the bridle roads and other elements in this problem of circulation. It will deal with the functional distribution of industry and residents and business on the broad basis of the region as a whole, and it will enter into other aspects of planning which will not be appropriate under state enabling laws to carry out in each separate municipality as a local plan. But it will be the master plan dealing with these great aspects within which the local plan shall fit and harmonize. Let us work out this conception in terms of a program.

First comes a consideration of the problems of circulation by highways comprising both traffic thoroughfares and parkways; then the zoning plan which, of course, will be applied separately by each municipal unit and very likely differently if the region lies in different states; then the subdivision control problem dealing with local street problems which are too detailed to find a place in the usual official street map. These three divisions will constitute the main elements of the master plan, parts of which will be adopted perhaps in a modified way, and carried out by the municipal units. In addition to these three divisions there are important plans of private corporations like railroad companies, of commissions like the Bridge and Tunnel Commission, and of private individuals. I take it that these groups will be guided rather by the soundness of our plan than be dictated to. We will merely endeavor to educate them. Two things are the essence of all regional plans. They must be tentative and flexible and yet sufficiently accurate guides for municipalities in preparing their local plans.

Much thought has been put into regional planning that has been inspired by the notion that it is the best means of promoting decentralization. This word is used very carelessly. Strictly speaking, decentralization would mean the distribution of the country's population and industry into such small groups that to call them centers would be a misnomer. In New York for twenty

years we have had so much decentralization of one kind that it is almost impossible for people to reach the central areas from the environs. This is not due solely to the friction of space between the place of occupation and the place of residence. It is also due to the fact that in this decentralizing process industries and homes have been moved from a center to a more remote place without having the problems of the new location solved for them in advance. They have merely moved from one congested area to create a new area of congestion.

A regional plan should give us the basis for sound distribution of industry and population. This process will be one thing in relation to industry, another in relation to residence, and still another in relation to business. In relation to business I like to call the process not decentralization but diffused recentralization. That means breaking up the existing centers to some extent by transferring some of the activities to new centers. We want to avoid crowding but at the same time to avoid scattering industrial development too far and too loosely.

With residences our process should be to penetrate the whole region with a series of neighborhoods so located that they will be as near as possible to the industries where the people are employed as well as to recreational facilities so that traffic necessities will be reduced to the minimum. The redistribution of business centers, covered so well in the paper on outlying shopping districts by Mr. Nichols, raises the most urgent problems in every city because people have not begun to realize that the motor car has materially changed the old conditions, when the proper thing to do was to build shops in a string along the main thoroughfare. Today every main thoroughfare is the equivalent of a railroad, creating precisely the same conditions, and prompts the set-up of shops at the main junctions of highways. In the old days you walked or drove along a highway doing your shopping as you went. Today you travel so fast that you want strategic centers for your shopping. If this is a correct assumption, the miles and miles of concrete highway between Niagara Falls and Buffalo apparently laid down

as potential shopping streets, will have little value for that purpose, and will have to be taken up for residential use.

The goal of regional planning then, is to produce in place of a regional sewage plan, a regional highway plan and a regional park plan, a master plan in which all these functions will be included. Such regional plans should be made not only for metropolitan districts but for great agricultural regions and great mining regions throughout the country.

We have still to get rid of a number of fallacies. One is that all land should be subdivided into 25 x 100 foot lots, no matter whether its use is to be for industry, business or residence. Another is that it is bad to have large residential estates in the suburbs. In so far as the estates obstruct the essential processes of development, particularly the main routes of traffic, it is probably sound to suggest some alteration, but otherwise these estates are the finest thing the environs and city have. They are things of art that it has taken years to produce. They may be among the most valuable large open spaces on the city's borders. It may be better to preserve them even if all the public can do is to drive around them by skirting roads.

Another fallacy is connected with land values. Economic value consists not in how much land but in the use to which it is put and the energy of the people who live upon it. If people live and work under unhealthy conditions of land occupancy the profits of the land owners will be lessened, and the people themselves, instead of contributing to the wealth of the country will be a tax upon that wealth.

Finally, we need not only to educate the people about regional planning, but we first had better find out what to tell them by determining ourselves the basic principles which we shall use in rebuilding our cities and regions, to satisfy modern conditions and standards.

DISCUSSION

RUSSELL V. BLACK, Philadelphia, Pa.: Regional Planning has been thought of a little too much in terms of a special science distinct from city planning. Actually the problems and difficulties of

regional planning are not so very different from those of city planning except in magnitude and in responsibility. The principal technical difference lies in the fact that regional planning deals with the interrelation of communities rather than with the problems of individual cities.

Administratively, regional planning holds the added complication of working with many political bodies. For certain of the regional planning projects now under way in the United States, such for instance as the Niagara Frontier, comparatively small in area and involving only two counties located within the same State, this difficulty is not so serious. But in certain other instances, such as those of the New York Regional Plan and the Philadelphia Tri-State District both of which involve a great number of political subdivisions divided between three states, the administrative difficulty cannot be overestimated. Up to the present time no satisfactory method has been evolved for carrying out a regional plan under these conditions. Whether or not the final working out of a method of procedure is to involve the creation of single official districts to cover entire projects, or the creation of separate districts for each of the state divisions and operating under a Joint Commission; or whether the problem can be handled through unofficial cooperation and moral suasion, remains yet to be determined.

Determination of Logical Boundaries of the Region.—The first large technical problem involved in regional planning is the determination of the logical boundaries of the region to be taken under study. This determination is not so difficult for many of the metropolitan areas in the more sparsely settled parts of the country. But it is a serious problem in some of the highly developed areas in the east.

There is always the temptation to keep on extending the boundaries of the region. There are always interesting and significant areas just beyond whatever boundary line may be fixed. Experience in determining the boundaries of the Philadelphia Tri-State District is a good instance in point. The first thought was to confine the project to the Philadelphia Metropolitan Area, within the State of Pennsylvania. It was shortly realized that the problems of this area could not be well studied without taking into consideration the rapidly growing Camden area just across the river. These two cities and their suburbs together comprise the actual Philadelphia Metropolitan Area. Analysis of the metro-

politan problem indicated that it embraced Trenton on the north and Wilmington on the south. The interrelation of these cities with the metropolitan center was evidently a serious problem which in turn could not be adequately studied without taking into consideration the major problems of the metropolitan areas of both Trenton and Wilmington. This brought the Philadelphia Tri-State District up to a size of approximately 3,500 square miles which seemed quite pretentious enough an undertaking. But to the northwest lay Reading and its territory; to the north were Allentown and Bethlehem, in many ways closely related to Philadelphia, and to the east lay all the New Jersey shore resorts including Atlantic City in which Philadelphia had a very definite interest. There was suggestion that these three additional areas be added to the Tri-State project. It was clear, however, that the farther the region was extended the more limited became the common problems upon which could be built community interest and community action. Final decision was to hold the boundary to limits previously decided upon, reaching to and including Trenton and Wilmington and no farther. Subsequent studies and complications have borne out the wisdom of this limitation of area. There is some question in my mind whether or not 3,500 square miles situated as it is in the Tri-State District are not almost too large an area to deal with effectively as a community project.

Public Understanding.—Perhaps the greatest obstacle to the rapid advance of the regional planning idea is the present lack of public understanding of what regional planning or even city planning is. Even among those who profess to know what it is all about there is surprisingly little accord as to what the problem involves or as to the fundamental objects of this approach to the problems of urban expansion. Our first great problem, therefore, is public education. This is a slow process and it will take generations to bring about any universal conception of or appreciation for planned development.

For many years our hope must lie in bringing a comparatively few far-visioned leaders to a regional planning appreciation and understanding. At the present time we are still pitifully weak in this. It is extremely difficult to find in any community, no matter what its size, a large enough group of men, with enough discrimination between good and bad planning, to determine the direction of these great and highly responsible regional planning projects.

There is need among the planning technicians themselves for much more adequate understanding of the problems involved. Regional and city planning are in their infancy. Their possibilities have scarcely been touched. Most of our planning to date has been based on back-sight which reached into an age of entirely different conditions from those of the future which we are now facing. It is childish to assume that the form of cities which proved all too inadequate to serve the needs of a saddle horse and horse and buggy age can meet the living and transportation requirements of tomorrow.

We know almost nothing of the size and form and interrelation of cities which will best meet our present-day requirements. We know little of the influence of various types of improvements on property values or of how this powerful influence, whatever its form, may be used to direct or encourage or limit city growth to the community's best interest.

It has been stated repeatedly upon good biological authority that the probable limit of population of the United States is approximately 225,000,000 people. The New York region alone estimates that it will have 20,000,000 people all housed close to Manhattan Island by the year 1970. Is it reasonable or logical that one-tenth of all the population of this United States with its broad opportunities for fine living should be housed within those few hundred square miles centering around New York City?

It is probable that there is a size beyond which a city or a region should not grow either in the interests of its own prosperity or in the interests of the country at large. What this size may be none of us know. We know even less about how the size of the city or region can be limited once it is determined upon. Much research needs to be done in all fields which directly influence city growth, including those of taxation and the economics of land development.

Possibly some of the greatest opportunity for study along these lines lies with the great regional planning projects of this country. They are all dealing with many kinds of communities growing under various conditions. If certain types of information can be collected for all of these regions and for all of these cities and brought to a central clearing house for study and comparison I believe we can advance our understanding of the laws that underlie and control city growth.

Money for Regional Planning.—With respect to getting money to carry on regional planning projects there is growing evidence

that sufficient funds can be made available if the matter is gone about in the right way. This certainly is true of the earlier phases of the work as evidenced by the experience of the Philadelphia Regional Plan. The most difficult financing problem appears to be that of getting enough funds to properly analyze and present the problem and the reasons why it should be undertaken in a large way. The Philadelphia Regional Plan is financed entirely by public subscription. In the first three years of its operation and until it had been able to get enough information together to make its story convincing money came hard. At the end of three years it undertook a financing campaign based largely upon its early surveys and a few preliminary plans. This campaign netted something over a half million dollars to be spent over a period of three years in making and presenting a comprehensive regional plan for the Tri-State District. This money came from various sources including the banking industry and public utility interests and numerous private individuals. Three individuals contributed a total of \$75,000.

There are members of this conference who have been fearful that the large subscription to this fund by the great public utility interests of the region would react unfavorably against the final working out of the plan and its acceptance by the people of the region. In my opinion if there are serious concessions to the large vested interests of the Tri-State District it will be because they are given and not because they are asked for or demanded by right of contribution to the working fund. It is logical that the large utility corporations should contribute money to work of this sort. No group of interests is so benefited by well planned urban development as are the utilities. And when all the facts are known it is probable that it will be found that the best long-time interests of the community and of the utility are one. They have the same stake in continued prosperity and ordered growth. It is the shortsightedness and opportunism of individual administrators that present whatever threat there may be against the full success of the plans of the country. There is real cause for concern, from a popular acceptance point of view in the too great involvement of public utilities in this period of widespread distrust of utility motives.

Making the Plan Effective.—I spoke of the form of organization necessary to carrying out a regional plan. Beyond the question of kind of administration there is the question of when and how is a

regional plan effective. As soon as the project is put down on paper there is the immediate demand that something be done about it. From the very nature of a regional plan it must contain projects which probably will not and should not be accomplished for 40 or 50 years. To my mind the success of a plan is not measured by how rapidly its several proposals are put into effect but by the extent to which regional projects are carried on without respect to and contrary to the regional plan. It is conceivable that years might go by without completing a single project provided for by the plan. But if during the same period nothing is done in violation of the plan, the primary purpose of your endeavor, that of insuring orderly growth, is safeguarded. This of course does not apply to that great range of deficiencies in park provisions and in transportation facilities, etc., which a city or regional plan must necessarily uncover. In this respect the plan is a promoting agency. This, however, would seem to me to be a secondary function, and as planning comes to be more clearly understood there will be less of the cry of failure when the presentation of a plan doesn't result in immediate new construction activity. A plan should not be a breeder of expenditure but rather should be a medium whereby needed improvements can be properly balanced, one against the other, and carried out to the greatest community advantage with a minimum of waste.

CHAUNCEY J. HAMLIN, Buffalo, New York: I have just a thought or two about the size of the region. Anybody that knows the New York region and has studied carefully the plan of the regional committee will agree that even the tremendous area covered by that plan comprising fifteen counties outside of New York City and over four hundred different municipalities, is not too great considering the greatness of the central city. Here in the Niagara region we first thought of our problem as being confined in the two counties of Erie and Niagara with six cities, twenty-two villages and twenty-five or thirty townships, but we have already been convinced by Mr. Adams and others that we should include in our regional plan a considerable portion of Ontario even though it is across the river and part of another nation. There is much in the idea that the larger the region that is planned, the more it fires the imagination of those that live in it.

HAROLD M. LEWIS, Executive Engineer, Regional Plan of New York and Its Environs, New York City: One of the most definite

results of regional planning is the promotion of much greater interest in local planning. This has been illustrated in the New York region where a great number of villages, boroughs, towns and even counties have created planning commissions during the last five years. One of the snags, however, is the difficulty of getting real co-operation between the municipal organizations and the regional organizations and in avoiding a feeling that the rights of the smaller groups are not being infringed upon. I would like to suggest a method of procedure which may avoid this snag. Let us take a proposal for a new regional highway which traverses many municipalities. The first step, it seems to me, should be for the regional organization to gather the facts which prove that such a project in a general way is required. Then give the facts publicity, preferably through the local Chambers of Commerce and civic organizations and through the local press, in order to secure the general approval by the municipality. The third step is for the Regional Plan organization to point out with some definiteness the location within the municipality of the highway and show its relationship to other projects in the plan which affect that municipality. The fourth step is for the municipality actually to fix the lines of the road and build it. You may feel that this takes a lot of time but every large municipal project takes many years from the inception to the finish.

A. B. HORWITZ, Duluth, Minnesota: The small city has not so much the problem of "recentralization" but of preventing over-centralization, and that brings up the difficult question of determining the point of efficiency in the size of a city. We have not gotten very far in the determination of this question and we are still further away from convincing the people that they must look for quality and not quantity in a city.

GORDON WHITNALL, Los Angeles, California: Mr. Adams spoke of the motorized age and its influence upon the design of cities and the necessity not only of recentralizing population but those other factors that determine population centers. You will appreciate that Los Angeles is particularly motorized since we now have over five hundred thousand automobiles in the city alone, or a motor for every 2.3 persons. Consequently the population is in what I term a fluid condition. It has a natural tendency to find its own level. Also because of disinclination or inability,

we have not resorted to artificial means of aggravating the conditions of congestion. The consideration of these two factors, fluidity of population and lack of artificial means of causing congestion, shows that people will not put up with pouring into central cities beyond their convenient capacity. The surplus flows elsewhere and though there is some tendency toward "shoe stringing" as Mr. Adams calls it, there is a more significant tendency of gathering that surplus in well balanced strategically located centers which have an almost uncanny quality in the regularity of their distance in time from the original center. Our region is building up a multiplicity of centers each quite sufficient unto itself and yet tied in very definitely with the parent center for economic and social reasons.

ALFRED BETTMAN, Cincinnati, Ohio: There is an idea which may or may not correspond to the facts that land goes through a residence use historically before it reaches a more intensive use. I wonder if Mr. Adams has in mind some provision whereby the more intensive use would take place from the beginning, and whether that could be brought about by any form of legal control or whether it would be the result merely of good regional planning which would indicate where the future traffic and trade centers would be.

MR. ADAMS: It is obvious that nothing can be done which approaches perfection, whether in planning or development. Even if we arrive at a sound diagnosis as to the best land use, we cannot expect to fully achieve it. Forces at present tend toward encouraging constant transition and lack of permanency. I have faith, however, that we can encourage the forces which tend toward stabilizing and I base this on European experience where holding land for sub-division until it is actually needed instead of forcing it prematurely on the market, does result in a more permanent use.

But we must be sure before we ask property owners to abandon privileges of freedom in the use of their land, that we are going to substitute something which is not unfair to them. Consequently there are adjustments which must at all times be made in our procedure. I believe that what we must ultimately aim at is a determination of what the land is best fitted for and then an endeavor to give it that quality by legal means. To illustrate from the New York region, I have calculated that if all the land

outside of New York City was built up to an average density of thirty people to the acre and you were then to duplicate the amount of land thus used, assuming that for every acre that was wanted two acres would actually be sub-divided, there would still be left in the New York region 1,500,000 acres of farm land. If you could determine approximately the 1,500,000 acres which could best be devoted to agricultural use, the most ideal thing would be to establish that land as farm land by legal process and tax it as such. We cannot achieve that perfection but we can put in motion the forces that will tend to approximate it.

THE COUNTY AS A PLANNING UNIT

CHARLES H. DIGGS, Director, Los Angeles County Regional Planning Commission

A study of planning procedure of all types brings one to the conclusion that time and effort are saved if a complete tie can be made with the governmental machinery that is in effect over the area involved. In other words, an adopted or an official plan is needed, no matter how many changes may be necessary later. There are ways and means of having the legislative body recognize a plan without involving that plan in detailed discussion by official bodies not equipped for such study.

It may be stated that the type of planning has a direct relationship to the area involved. In *national planning* we have problems that are entirely different from those involved in city planning. Early attention should certainly be given to all those factors of national planning that lead the country to a more economic and sound foundation for expenditures of the future. In *state planning* we already have a number of examples of the application of planning principles, without being conscious of the fact in many cases. Comprehensive highway systems and certain attention to zoning are making state planning a fact. There will be need in the future to amplify this with an actual recognition of all the factors of planning as applied to a state. In *county planning* we have a unit that makes it possible to apply certain principles of city planning to an area that is not as yet fully developed. In such a case it is possible to give attention to all those divisions of planning that are mentioned in a detailed discussion further on in this paper. With *city planning* we have developed principles that have been tried and found satisfactory in the planning of new cities and also the making over of old cities to meet present and future needs. The methods involved here are very well set forth

in the many city plans that have been prepared in those sections of the world that are rapidly becoming metropolitan areas.

From the above one may draw the conclusion that all planning falls into two classes: *corrective or preventive*. A great amount of the planning that is being done and that will be done in the future is of a *corrective* nature. It would seem possible to place county planning in the *preventive* class as it is possible to apply many of the planning principles involved in city planning in such a way that mistakes can be foreseen and avoided rather than allowed to take root and then have to be corrected.

THERE ARE MANY REASONS FAVORABLE TO THE COUNTY UNIT.

1. THE AREA INVOLVED ALLOWS THE APPLICATION OF THE PREVENTIVE TYPE OF PLANNING.

As noted above, it is evident that real planning can take place when a county unit is a regional unit. It is realized that many counties are not so constructed as to form a basis for regional planning. However, there are many counties in the United States that would form a very satisfactory basis for such planning, and it is such counties that should not hesitate to undertake responsibilities in this regard. It is part of human nature to respect and have confidence in any work that is of a preventive rather than a corrective nature.

It is a well-known fact that what we put money into we are greatly interested in; and the effectiveness of planning in a county is very often in proportion to the amount of funds and the way in which they are used. It is rather disconcerting to see so many attempts made to accomplish great plans with lame equipment. No one should receive credit for working with inadequate or poor tools. *The magnitude of county planning warrants the expense involved*, and it is not difficult to prove to the average taxpayer the early economies that will be gained by following a definite plan.

As adequate finances are necessary so also *the extent of the work requires proper organization*. If at any time the funds that are appropriated for such work are not properly invested in a well

organized staff and equipment, difficulties and criticisms are immediately invited from many sources. On the other hand, confidence is inspired in the intent of planning if a wise use of funds and a well planned organization are in evidence at all times.

2. THE WELFARE OF COMMUNITIES IS SERVED WITHOUT HINDRANCE TO LOCAL GOVERNMENT. Here is an opportunity that has sometimes been overlooked. It is possible to get the attention of local governments to the greater scheme and how they fit into it and at the same time assist them in strengthening their local effectiveness. For example, a city council of a small municipality is inspired to greater accomplishment when they realize that they are part and parcel of a regional plan and that they have a very definite and important contribution to make toward that plan which can be measured according to their active support and assistance rendered.

3. THE PLAN GAINS EARLY ACCOMPLISHMENTS, and it is surprising what progress can be made when such a large unit as the county is involved. Without careful study one would expect that the time involved would be in proportion to the area. However, it is believed that this is not the case, for instead of considerable effort being wasted on details that are given undue importance, the essentials are continually kept to the fore and surprising progress is made because of this fact. It forces all those working on a plan to give particular consideration to the fundamentals involved and to disregard non-essentials.

The understanding of the word "plan" simply signifies taking all things involved and working them into a whole; and the more varied the interests that are involved in regional planning, the more necessary it is that the centralized agency become effective. When varied interests do become centralized, we find time and effort is saved and planning work goes forward without delay.

4. THE CONFIDENCE OF INDIVIDUALS IS GAINED WHEN A CONSTRUCTIVE ATTEMPT IS MADE TO AVOID MISTAKES AT THEIR SOURCE. How important it is to maintain the confidence of individuals in planning work at all times! So much failure can be laid

to neglect of this important item, and still it is not necessary for any of the long tried rules of planning to be violated in order to gain this. In fact, a plan is nothing unless it is workable, and the very people that are going to make it work are the ones whose confidence can be gained. When an attempt is made to avoid mistakes at their source, it inspires others to take an interest in what is involved.

5. THE PRACTICAL APPLICATION OF PLANNING IS MAINTAINED BY MAKING THE PLANNING DEPARTMENT A DEFINITE PART OF COUNTY SERVICE. The official connection of planning has been referred to in the beginning of this paper. The meaning here is that if a planning department is forced to look immediately to practical application of the plan, it will keep its feet on the ground and will be happy to see many of its projects adopted early and put into effect by cities and other divisions of the county. It is always essential that a planning department gain the respect and confidence of other governmental units, and a practical application of the plan is the surest way to maintain this need.

6. THE COUNTY UNIT MAKES IT POSSIBLE TO EMPLOY A COMPETENT STAFF, LEAVING COMMISSION FREE FOR THE DEFINING OF POLICIES AND THE CONSIDERATION OF APPEALS. This is a matter of organization. It is difficult to acquire a competent staff for planning work at the present time, for although an engineer or similarly trained person may have all the qualifications in a technical way, he may completely lack the ability to obtain public confidence. Methods of presentation are as essential as technical training, and if the staff is not well balanced, difficulties are ahead. The findings of a planning commission should be based at all times on technical knowledge, but they must be expressed in such a way as to be understandable to all those interested. At the same time the commission assumes the supreme responsibility for the defining of policies and the consideration of appeals. The relative functions of a competent staff and commission should be carefully understood at all times so that planning progress is not hindered by lack of cohesion in this respect.

7. THE ACTIVITY OF CITY, COUNTY AND STATE DEPARTMENTS MUST BE COORDINATED TO PRODUCE A COMPLETE HIGHWAY PLAN. Here we have an immediate application of the effectiveness of a county used as a regional unit. A plan that has taken into consideration the needs of a city, county and state as to highway development will command the respect of a large majority of the taxpayers living in the area involved. A plan that ignores any governmental department weakens its effectiveness in proportion to such neglect. Any plan which is the result of contact of official and unofficial agencies will have a surer ground on which to hope for its execution.

8. THE MISTAKES IN LAND SUBDIVISION ARE AVOIDED WHEN USE OF PROPERTY IS DETERMINED IN ADVANCE; I. E., ZONING BY DESIGN. It is noted that here is an opportunity to apply in advance many of those principles that are followed in all city planning work. The public is eager to see a demonstration of these factors at an early stage rather than wait until corrective measures are necessary. There are so few of these examples in existence at the present time in this country that every attempt should be encouraged to the end that more zoning by design will be apparent. Every effort should be exercised to convince land owners, officials and the public to cooperate in the bringing about of these examples. The effort is well worth the attempt and demands a great deal of hard work on the part of planning officials, engineers, and owners of property. The opportunity is more apparent in county planning than in city planning.

9. THE PROBLEMS OF LANDSCAPE DESIGN CAN BE ECONOMICALLY HANDLED. Because of its less developed character the county offers more opportunities in this respect. In certain localities there are many examples of this feature of planning. Excess condemnation will make it possible to apply certain details of landscape design that of necessity were ignored in the past. The many grade separations that will be designed in the future will, if properly studied, involve details of this nature that will not only decrease the cost of the project but will maintain and in-

crease values in the immediate vicinity to a marked extent. This is only one of many phases of landscape design that will receive attention in the future. In fact, in regional planning, it has been found that it is almost impossible to solve any of the problems involved without finding landscape design an important factor.

10. INFORMATIONAL MATERIAL IS PRESENTED IN A BRIEF, CONCISE AND EFFICIENT MANNER SO THAT NO TIME IS WASTED. This is an important item for it makes every move in connection with the regional plan an effective one. In the final analysis, we depend upon the public to stand back of the plan. If all informational material is carefully edited it will be possible to reach 100 persons when only 10 might be interested in a long, technical report.

11. PORTIONS OF THE PLAN BEING EXECUTED IMMEDIATELY DEMANDS SOUND ENGINEERING. No doubt most plans are based on sound engineering, but the test comes when the public demands immediate application. This offsets any uncertainty in this regard which might exist if a plan were allowed to lie dormant for any length of time.

12. THE DIVISIONS OF THE WORK ARE APPARENT AT ALL TIMES (HIGHWAYS, TRANSPORTATION, SUBDIVISION OF LAND, USE OF PROPERTY, RECREATIONAL FACILITIES, UTILITIES AND ARCHITECTURE). Operating on a large scale keeps before all concerned the complete intent of the plan as to the relationship of its parts—certainly not always possible in city planning.

13. THERE IS CAREFUL PROJECT INITIATION. The area involved being of considerable extent, the projects are not of a minor nature, but are so extensive in character that they are always subjected to very careful analysis before being initiated. This avoids serious mistakes that do occur when projects are hastily encouraged by local communities. An extensive project will also demand careful approval by local as well as county officials.

14. COUNTY PLANNING DEMANDS THE COORDINATION OF OFFICIAL AND UNOFFICIAL BODIES. Here is one of the finest by-

products of regional planning, for it develops at all times a very careful tie between official and unofficial agencies. It is another means of taking large bodies and winning them to the importance of the plan. They not only become passively interested but have an active part in its inception and accomplishment. If one agency should attempt to direct opposition to a plan, there would be many other bodies which would offset and make ineffective such an attempt.

15. THE AREA IS NOT TOO LARGE TO PERMIT DETAILED STUDY. In conclusion, there are of course other governmental units that might prove adequate in planning. But when the county is a regional unit it is possible to apply therein those numerous details that are so essential to all planning work. Therefore, it would seem that in the majority of cases in the future, the new planning unit will be the county.

The County of Los Angeles is now applying with satisfactory results many of the principles outlined above.

DISCUSSION

GEORGE C. DIEHL, County Engineer, Erie County, New York: Erie County is typical of many counties in the United States. It has about the average county area, a thousand square miles; it is a metropolitan county with a large city as the economic center. I believe it is one of those counties particularly adapted as a planning unit, because after all what we want is not an ideal plan but the best plan that can actually be translated into action. I believe that the governing body of the county should not only endorse the plan but should be responsible for its fulfillment.

One of the reasons for my belief is that Erie County has already stood sponsor for a plan of greater motorways involving an expenditure of \$35,000,000. Because this was a county plan, the board of supervisors who are elected by the county, were directly responsible for it. The whole scheme in the last two years has been two-thirds completed and the other third will be finished within three or four years.

Mr. Diggs referred to the undeveloped character of the county as another reason for its being used as a planning unit. That

particularly applies in Erie County. The city limits of Buffalo haven't been extended for over fifty years, and the Buffalo City Planning Commission's jurisdiction is limited to the city limits. It is obvious that the plan should extend over the entire county and that a county-wide commission should have jurisdiction over the administration of the plan. In this area we have now eight or ten sewage disposal plants, four or five different sources of water supply, and there is no correlation between them.

I believe thoroughly in the Niagara Frontier Planning Board. The only difference that I have with some of the regional planners is that I believe that a great part of the work should be carried out by the Erie County Board and the Niagara County Board working through existing public agencies which have control of the purse strings and produce results. I would suggest that the Niagara Planning Board have a force, not too large, of engineers and administrators who can correlate the plans where they meet at county lines, who can look at the problem probably in the larger aspect, but who can still have the problem worked out through the existing public agencies.

The magnitude of every county warrants the expense involved in county planning. In this I quite agree with Mr. Diggs. The trouble today in city and county administration is that without a definite plan as a guide, we have many forces trying to carry out their own little plans and fighting to see which can make the best showing before the electorate. Mr. Diggs spoke also about planning work requiring proper organization and that is particularly true of an organization requiring engineering. Our county appointments in New York State must be made from civil service and it takes a long time to build a well-equipped engineering organization. Some of our county organizations have been at this job for twenty-five or thirty years and I believe it is well to utilize the organizations which have been already built up. The point about getting the approval of localities by appealing to their self-interest is a good one. Our motorways plan, already mentioned, was sold to the people largely because the different localities saw that it would help them. We must not get too far away from the practical, altruistic viewpoint sometimes called, harshly, the selfish viewpoint.

We must have practical publicity. You can't do anything great these days without it. This means the newspapers and all the agencies which transmit information to the public. The greatest

of these agencies are the public administrative bodies. Their meetings are always closely followed by the newspapers.

The successful carrying out of a plan over a period of years demands sound budgeting. People want to know what the plan is going to cost, what effect it will have on the tax rate and what effect on assessed valuation. We must convince the voters that our proposals have a sound fiscal setup, and here again the county board has a particular advantage in its committee organization and in its long experience with county budgets. I am for an Erie County Planning Board which will cooperate with the Niagara Frontier Planning Board and with all other agencies to produce a great plan and carry it out.

JAY DOWNER, Chief Engineer, Westchester County Park Commission: Some counties in the United States are regions in themselves and consequently are good planning units. The county that I am familiar with is but one unit in the New York region but it can carry on a good scale its share of the Regional Plan. Towns and villages and even cities can do nothing beyond their rather limited borders but the county not only has jurisdiction over a much larger territory, but its borrowing capacity is greater. Then too, the county plan is big enough to get over the heads of the small local kickers who destroy so much good planning in towns and villages and cities. We are beginning to realize, I think, that in order to carry out plans we must make them so big that the little local fellow who goes to town meeting to protest, doesn't know enough about our plan to say anything.

In Westchester we have the usual Board of Supervisors, although its forty-two members make it unusually large, but under good leadership we have been able to plan and build trunk sewers and a good highway and parkway system. With the very great assistance of the Regional Plan of New York we have the towns and cities and villages in Westchester all interested in planning and in coordinating, and during the past year or two some very fine local plans have been adopted by smaller units, all in harmony with the regional plan. It seems to me that in the execution of the plan it is the job of the county government to carry out its part of the Regional Plan.

I don't agree entirely with Mr. Diehl that we should depend solely upon the county organization. Our experience with county, city and village officials is that they are the poorest dependence

for planning execution. They are usually too busy with municipal housekeeping. We must have a Regional Plan and live men from the outside to help the county officials.

A. E. K. BUNNELL, Toronto, Canada: An interesting modification of county planning is being carried on in Ontario just opposite Detroit. Eight or ten municipalities, mostly urban, have combined and created what is known as the Essex Border Utilities Commission and are operating under special legislation which was granted by the Provincial Government. All projects having to do with highways, sewage distribution and sewage disposal, water supply, the parks and hospital accommodations are not only planned by the Board but are financed by a scheme set up to carry them out.

E. A. HOWARD, Milwaukee, Wisconsin: Mr. Downer believes it is better to bring in outside help to assist the county government in the matter of regional planning. Certainly Mr. Diggs' organization illustrates the effectiveness of that method. The same is true in Milwaukee County. One other thing has been hinted at in regard to the advantage of county planning. This is that you get away from the particular jealousies of the leaders in the villages, towns and cities in the county government. You have representatives not only from the cities, towns and other incorporated places, but from unincorporated areas so that all the people of the county are represented.

THE PROVINCE AS A PLANNING UNIT

HORACE L. SEYMOUR, Director of Town Planning, Province of Alberta,
Canada

In presenting this paper I begin with the assumption that you know the geography of the United States or that at least most of you here assembled know the geography of the United States better than that of Canada.

If you were to measure from the westerly limit of the State of Pennsylvania, considerably farther west than this city of Buffalo, to the most easterly point in the Republic, that is, in the State of Maine, you would still have a distance less than the length of the Province of Alberta, Canada, as it extends from south to north some 750 miles; and the area of all the States from Pennsylvania to Maine, and this includes as well the States of New York, New Jersey, Vermont, New Hampshire, Massachusetts, Connecticut and Rhode Island—the area of all these States is less than two-thirds the area of the said Province of Alberta about which I am to make some remarks in connection with its planning problems and planning administration.

The Province of Alberta has an approximate area of over 254,000 square miles, had in 1926 a population of 608,000, or 2.3 persons per square mile. The States mentioned, taken together, have an area of 161,976 square miles with a population of 29,662,053, or 183 persons to the square mile. Please note the contrast, 2.3 person per square mile in Alberta; 183 persons per square mile in the New England and Mid-Atlantic States. Only the States of New Mexico, Arizona, Wyoming and Nevada have a smaller population per square mile than that of the Province of Alberta.

In Alberta there were in 1926 six cities, 55 towns, 114 villages. Of these urban municipalities only 91 were over 300 in population, only 27 over 1000, four over 5000 and only two over 50,000. Such urban population gave a total of 221,243. That includes within a

few thousand the whole urban population of the Province. The remainder, the rural population of Alberta, is therefore from 60 to 65% of the total population, a high percentage as compared with the national averages, both in the United States and Canada, of approximately 50%.

The figures just quoted have been given to show that Alberta is a large Province, that it has a small population, mostly rural, and that that population is as yet scattered over many square miles. *Why the desire, whose the vision, to have the Province function as a planning unit and how is that function of Provincial Government being worked out?* These are the questions I shall try to answer for they may have some implications of value to other Provinces or States in this North America of ours.

All signs point to a great future for the Western Provinces of Canada and, may I add? in particular for the Province of Alberta.

Alberta's total coal reserve is estimated at one million million tons (a real British billion) sufficient to last the whole of Canada for many generations, being 14% of the entire world's coal reserve.

Many cities and towns in Alberta use natural gas—and Alberta's production exceeds the productions of all the other Provinces in Canada—use it industrially in the southern part of the Province, but almost exclusively for domestic use in the more northerly part of the Province.

Alberta has valuable timber in the north, tar sands in the far north and already clay product industries in the south. Withal great opportunity for future industrial development.

The manufacturing industries now established and flourishing in the Province show that with the growth of the farming industry there is an increase in the scope for industrial enterprises having for their object the processing of farm products and supplying the farmer's needs. The coal, gas and oil resources of the Province suggest that in the not very distant future there is a possibility of substantial industrial development in Alberta, comparable to the industrial development which has already taken place in many of the Western States.

But it is Alberta's agricultural possibilities that make particular appeal to the writer. You know how the prairie Provinces of Canada are producing more and more grain. Study the isotherms, the amount of summer sunlight, the soil conditions and you will understand why. Grain is being grown in Alberta 600 miles north of the international boundary in the famous "Peace River" Country which, as early as 1893 at the Chicago World's Fair, took the first prize in wheat. Again in 1926 and since, in Chicago at the International Hay & Grain Show, the world's championship was won in both wheat and oats by Herman Trelle, in the Grande Prairie district of the "Peace River" country.

Bordered by and partly included in the "prairie," Alberta claims on its western boundary two of the greatest natural scenic parks under Federal control in the world—The Rocky Mountain Park with Banff and Lake Louise best known, and Jasper Park farther north in the Province and a continuation of the same Canadian Rockies. Waterton Lakes Park, another national mountain park, is in reality a continuation of the Glacier National Park of Montana and is equally attractive.

Very briefly and very sketchily, of course, I have tried to show that Alberta has wonderful future possibilities. But until a few years ago there existed little public realization of the necessity of town planning. As a result, development, particularly in urban centers, has been haphazard, costly, inconvenient and unsightly. The Premier returned from a trip to the old country in 1927 impressed with what he had seen there in the way of convenient and beautiful development and keenly desirous that the future development of his own Province should be guarded along lines which would make urban centers pleasing places, and would tend to improve instead of marring the natural beauties and amenities of the Province. That he at once started to do and, also to get public support for his ideas, and within a year he has enlisted not only the members of his Cabinet and the agricultural group which elected him to office, but also the public at large in the cause of the rational development of the Province with a due regard to æsthetic values, both in town and country.

What has actually been done? In the fall of 1928 a Town and Rural Planning Advisory Board was appointed by the Government under the provisions of an Act prepared largely for the purpose of appointing such board. Mr. C. Lionel Gibbs, architect and member of the Provincial Parliament, is chairman of this Board. Premier the Hon. J. E. Brownlee and the Hon. R. G. Reid, Minister of Municipal Affairs, under which Department the actual work of Town Planning is being carried out, are the Government members of the Board. Appointed from various parts of the Province other members of the Board include a civil engineer, a farmer, a financier and last, but not least, two women members representative of the United Farm Women of Alberta and the Women's Institute. The writer, appointed as Director of Town Planning, is also a member of the Board.

On the 20th March 1929 the Town Planning Act, being Chapter 49 of the Statutes of Alberta, came into force. Of this Act the Journal of the Town Planning Institute of Canada in its April, 1929 issue states in part as follows:

"It is divided into five parts, the first deals with the preservation of natural beauty and the duties of the Advisory Board in that regard. The Board will cooperate with any local or rural authority in formulating and carrying into effect any official town plan or any town planning scheme; it will assist and advise any rural authority in devising ways and means for preserving the natural beauty of the locality and of insuring that any new buildings and erections therein shall be so designed and located that they shall not mar the amenities of the locality. The Board will have power to make regulations respecting any part of the province which is not included in any city, town or village with respect to building lines on each side of highways, design, location, and construction of gasoline stations, garages and refreshment booths, sites of tourist camps, character of sign boards and advertising devices. If such structures do not meet with the approval of the Board an order will be issued for the removal of them within seven days, under penalty. The Board may acquire land for highway park purposes by private treaty or expropriation.

"Part II deals with the appointment of Town Planning Commissions to act in an advisory capacity for the promotion of town planning projects in city or town. The Commission may appoint town planning engineers, consultants and other officers with the approval of the Council. Regional Planning Commissions, composed of representatives of adjoining municipalities are authorized and councils may delegate to the commissions such powers, with the exception of raising money or expropriating land, as are necessary to their work. Any local or rural authority shall have power to prepare an official Town Plan and official improvement schemes, street widenings, street traffic improvements, railway and airport facilities and to acquire land for public purposes. It is made clear that such planning does not involve immediate expenditure, but is an insurance for a proper development in the future. Any official plan will need to have the approval of the Minister before it can be adopted by a by-law.

"Under Part II the right of excess condemnation is granted to the council, by which is meant power to acquire lands adjacent to those actually required for a town planning scheme in order to establish some proper planning control over adjacent lands. Provision is made for zoning schemes, including an important section controlling the design, character and appearance of buildings in certain places and another section prohibiting the erection of buildings until provision has been made for the supply of light, water, sewerage and streets. Anyone with experience of conditions under which shack towns grow up will see the importance of this provision.

"The Minister is given power under this section to bring pressure to bear on local councils which are taking no town planning action, and if he is convinced that it is in the public interest that a town planning scheme should be prepared he has power to order such authority to prepare and adopt an official town plan. If the authority is recalcitrant the Minister has power to appoint officials for the carrying out of a scheme as indicated by the Act.

"Part III deals with damages and enforcement. Part IV deals

with subdivisions and makes adequate provision for the re-plotting of areas that have been badly subdivided. Part V is concerned with administration, making provision for the appointment of a Town Planning Director, Advisory Board and the necessary staff.

"The Alberta Town Planning Act has obviously entailed an enormous amount of study and a vigorous attempt has been made to adopt new ideas in town planning legislation and to make the act a powerful up-to-date instrument for the development of town planning in Alberta. Such features as architectural control and excess condemnation may be said by this time to have won the suffrage of town planning authorities all over the world and it is much to the credit of Alberta that these principles are to be given adequate recognition."

In an editorial dated March 30th, 1929, the "Saturday Evening Post" under the caption "The Right to Beauty" tells us that the State of Nevada leads all the rest in the thoroughgoing character of the legislation she has passed to preserve the natural beauties of her highways and to ensure that rural bill-boards may not be erected that will immeasurably mar the natural beauty of the scenery or obscure the view of the road ahead. Regulations of similar effect are being prepared by virtue of the new Town Planning Act for the Province of Alberta. The "Saturday Evening Post" editorially adds "that not only should bill-boards be regulated, but there should be exercised reasonable control over the character of filling stations and other vending establishments which abut on rural highways," and points to the step that the State of Connecticut has taken in this regard. Other Provinces and States as well are considering such problems, but it is felt that the Province of Alberta has, at the present time, more far-reaching legislation in these matters. In fact, it seems to the writer, it may be stated that there is no Government in any Province or State which has such a fine conception of how Town Planning should and can be accomplished throughout its domain, in highway and countryside planning, in the planning of cities, towns and villages, with which most of us are more familiar, and in that much more am-

bitious undertaking in the assisting of each individual farmer with his "planning" problems. Consideration is also being given to new community settlements to be designed along modern lines.

Equally courageous and far-reaching is the conception of the Government as to how this work is to be carried out. With a total population largely rural of under 700,000 averaging 2.3 persons to the square mile, with its two largest cities, each with a population of less than 70,000, just recovering from the effects of pre-war speculation as well as lack of planning, and with the majority of its towns under 1000 in population, it is recognized that a Town Planning Office must for some time at least be not merely administrative—it must be as well consulting and even in certain cases a practising organization. It has been stated that you cannot advise and consult with a municipality on plans that eventually will come before you for official approval. But the Government of the Province of Alberta does not regard this problem in that bureaucratic way. The Town Planning Branch of the Government is for service. It will lay out rural parks, picnic grounds, tourist camps, school grounds, fair grounds and hospital grounds. It will advise cities, towns and villages on their planning problems when definite information (according to instructions and typical plans prepared by the Town Planning Office) is provided. And for the farmer, wherever possible, a competent Government official will visit his site and prepare a sketch and submit plans which suggest proper grouping of farm buildings, the location of drives and the installation of running water and sanitary conveniences and the planting of the farmstead with shelter belts and hedges, specimen trees, shrubs and perennials.

In all these matters of rural planning the subject of sanitation is stressed. Co-operating with the Town Planning Office as now established assistance is being rendered by Mr. R. B. Owens, Provincial Sanitary Engineer, Professor Burgess, Architect, and Professor Harcourt, Horticulturist, of the University of Alberta. Assisting particularly in the farmstead work there are several District Agriculturists, all technically trained men, and some of the

principals of the various Agricultural Schools throughout the Province.

Although the new Town Planning Act has just recently been printed for distribution, several cities and towns have appointed, or are appointing, Town Planning Commissions which they may do under the provisions of the Act. The advantages of such action have been pointed out to them and they have also been told that such action on their part is one way of indicating their approval of what the Government of the Province of Alberta is endeavouring to do to make Alberta a better Province in which to live.

Those of you interested in the problems of planning for a Province or State and all its various needs will realize the great amount of information—instructions and regulations that must be prepared for the various municipalities—first of all to interest them and then to instruct and advise them. A great deal of this information is codified and now ready for distribution. Typical zoning by-laws and building by-laws are in draft.

Before concluding I wish to mention something about regulations in regard to subdivisions. The intention of the Act is that any new subdivision or sale, lease or mortgage of land should be subject to the approval of the Town Planning Board for reasons of which you are well aware. The proposed regulations in regard to the subdivision of land include this provision:

“All land to be subdivided shall be eminently suited for the purposes it is intended” and “should it appear that the whole or any part of the land proposed to be subdivided is not in the public interest to be subdivided or offered for sale to the public” the registration of such subdivision can be refused. With certain exceptions 10% of the total area of a subdivision being registered is to be set aside for public or park purposes. In the case of residential subdivisions bordering on railroads a 150 foot park strip is required between the nearest street and the railroad right of way.

For areas outside cities, towns and villages and where there are no zoning regulations, there must be registered with that subdivision a caveat which is in effect a simple form of zoning by-law,

to protect such subdivision until such time as it becomes an organized municipality and can make its own zoning regulations.

Attention has already been drawn to the fact that under the powers of the new Town Planning Act of Alberta there may be included under a zoning scheme a provision prohibiting the erection of buildings until adequate provision has been made to supply such building with water, sewers, light, etc. Then there is the broad power giving control over design, character and appearance of buildings. Just how that will work out remains to be seen—like some of the other powers in the Act it may not be called into frequent use, but it is there in a permissive way under ordinary conditions, but can be invoked under special conditions.

In conclusion I would like you to feel, as I feel, that the Province of Alberta is engaged in a worth while experiment that has great possibilities in making life more beautiful.

ENLARGED USEFULNESS OF CITY PLANNING COMMISSIONS IN NEW YORK STATE

EDWARD M. BASSETT, President of the Conference, New York City

In the State of New York the ordinary county is divided into towns usually about ten miles square. In these towns are incorporated cities and villages, but the area of the town outside of such cities and villages is usually called unincorporated territory, although new laws have gradually strengthened the form of government of towns until now in many respects it resembles that of municipalities. The laws of the state have been grouped into single laws called "Consolidated Laws." We have our General Municipal Law relating to counties, towns, cities and villages, our Town Law, our Village Law and our General City Law. Our General Municipal Law was amended in 1913 to allow every city and village to create a planning commission having advisory powers and power to approve development plats before they can be recorded in the county clerk's office. Such a commission can prepare a master plan as an aid in making its recommendations and approving plats. The planning commission of Buffalo was created under this law.

In 1926, with the advice and co-operation of the Regional Plan of New York and Its Environs, a number of cities and villages in the southern part of the state advocated a new permissive law under which those municipalities that so desired might strengthen the hands of planning commissions especially regarding the street and park layout. This law was incorporated in the General City Law in 1926, in the Village Law in 1926 and in the Town Law in 1927. The purpose and effect of these three laws are the same although the phraseology differs somewhat. I will enumerate the features of the new laws:

(1) The local legislative authority is empowered to create a planning board.

(2) The local legislative authority is empowered to establish an official map of streets and parks showing existing streets and parks. The legislature declares that this official map is established to conserve and promote the public health, safety and general welfare.

(3) After receiving a report from the planning board, the local legislative authority is empowered to amend or add to the official map of streets and parks.

(4) The local legislative authority may empower the planning board to approve development plats showing new streets. After a certificate of such fact has been filed with the county clerk, he is prohibited from accepting a plat unless it contains the approval of the planning board.

(5) Upon the filing of such plat with the county clerk the new street or park shown thereon becomes a part of the official map.

(6) The land owner before filing the plat may make a notation thereon to the effect that no offer of dedication of such streets or parks is made to the public.

(7) Permits for buildings to be erected in the bed of a street shown on the official map but not yet opened will not be issued by the building inspector in regular course but by the board of appeals. The board of appeals can in its discretion grant a permit for a building which will as little as practicable increase the cost of opening such street.

(8) Public sewers and other municipal street improvements shall not be constructed in any street until the street is shown on the official map.

(9) No permit for a building shall be issued unless a street shown on the official map gives access to such proposed building.

(10) In proper cases the planning board can require a playground to be shown on a plat which also shows a new street.

(11) Advertised hearings must be held before the board or the local legislative authority can make a determination regarding a street, park or plat.

(12) Whenever the planning board or board of appeals can

make a determination, such determination is subject to review and adjustment by the court.

(13) A planning commission created under the General Municipal Law can receive additionally all the powers of a planning board under the new laws if the local legislative authority so ordains.

The purposes of the new laws are:

(1) To establish an official map of existing and proposed streets and parks.

(2) To produce a master plan to aid the planning commission or board in advising the local legislative authority and in approving plats.

(3) To facilitate the cession or dedication by the owners of land within the lines of streets shown on the official map but not yet opened.

(4) To preserve the integrity of streets shown on the official map but not yet opened.

(5) To bring about the cession or dedication of occasional playgrounds or small parks simultaneously with the cession or dedication of new streets.

(6) To prevent chaotic layouts of private streets by withholding building permits on such streets.

(7) To facilitate the widening of streets with the cooperation of abutting owners.

These new laws are being widely adopted in the State of New York.

About five years ago, and before these new laws were passed, the president of a Long Island village, himself a New York lawyer, called at my office in a state of great perturbation and said, "We want your advice. Two farmers near the edge of our village have deeded each other mutual easements, each fifteen feet wide, and are beginning to build what they call a thirty-foot street with roadway and sidewalks. This new street will smash up our entire plan in that part of town. What shall we do to prevent them?" I said, "You cannot prevent them. They have a right to put a roadway and sidewalks on their own private land just as much as

if it were a driveway leading from the street to a private house. And what is more, this is not only true of your village but it is true of every city and village that I know of in the United States." "Well," he said, "we will see about that." He went to court and of course was defeated. About six months later he came raging into my office and said, "Mr. Bassett, what do you think? Those men who made the misplaced private street thirty feet wide have demanded building permits for houses fronting this street and say that they will go to court if we do not issue them. We will not stand for this because when the houses are once put up the little street will be there forever." I said, "I guess you better issue the permits before the court makes you. They have a right to put up lawful buildings on their own land. And what is more, this is not only true of your village but it is true of every city and village that I know of in the United States."

The new laws wherever they are adopted prevent this practice. They go to the root of the trouble, which is the unregulated issue of building permits. No subdivision developer will spend his money in developing unauthorized private streets if he knows that he cannot get building permits.

The new laws recognize that streets and parks constitute the backbone of the city plan. If municipalities can control the placing of streets (whether public or private) and can preserve the integrity of the street plan before the streets are opened, all the other elements of city planning follow in an orderly way. But if the individual owner can as a matter of right create unauthorized private streets and at will destroy the integrity of the street layout, all the other elements of city planning are left without a firm foundation.

PROGRESS AND PROBLEMS IN BUFFALO CITY PLANNING

GEORGE S. BUCK, Managing, Director, Buffalo City Planning Association

A request was made by the National Conference on City Planning that someone review city planning progress in Buffalo, and that such a report be not confined to what has been accomplished but that the problems be also stated, because delegates to a gathering of this kind are interested not only in successes but also in difficulties and failures. The Board of Directors of the Buffalo City Planning Association selected me to make this report and I shall try to do so fairly and frankly but wish to have it clearly understood that any views expressed are my own and may not represent the carefully considered opinions of the Board.

It will be easy enough to tell of the successes and progress made. The difficulty will come in stating the problems. So many have labored earnestly in all that has been done that it seems ungracious to touch upon labors that have not borne fruit.

In order to estimate progress it is necessary to have some standard by which to measure it. The delegates to this Conference can be trusted to agree that the chief object of city planning is to secure the careful working out of a comprehensive master plan based on thorough study of the area, its adoption and execution over a term of years. The usual agencies to accomplish these ends are an official city planning commission to make the plan, and a planning association made up of private citizens to keep alive interest in the work, to aid the official commission and to promote and defend the plan.

Now, having set up a rough outline of the standard to be desired, let us see how much of it has been attained. In October, 1918, the Mayor was authorized, by resolution of the City Council, to appoint a committee of six to devise "a comprehensive planning and

zoning system for the city of Buffalo and to report the same." This committee continued to function until the new Charter came into effect, January 31, 1928, and about August 1, 1928, an official City Planning Commission was created under the General Municipal Law of the State of New York. It was soon realized, following the appointment of the City Planning Committee in 1918, that to make progress there was needed back of it some citizens' organization to crystallize public opinion and make it effective. The first move in this direction was made by a committee of the Greater Buffalo Advertising Club, under the Chairmanship of Mr. George C. Rice, which grew into the Buffalo City Planning Association, incorporated in December, 1921, under the Presidency of Chauncey J. Hamlin, who continued in that capacity until December, 1927.

The minutes of the Buffalo City Planning Association give a brief summary of the discussions that occur and in its early years it is interesting to note that those who were guiding its policies had the vision of a comprehensive plan, not only for the City of Buffalo but for the region surrounding it.

In 1921 a plan was made for the City of Buffalo and there was an earnest effort to secure its adoption. The City Council, however, did not adopt it as a whole. It did adopt a resolution accepting the proposals of the plan for the location of public buildings. Out of this plan we have secured a Civic Center on Niagara Square, which is in process of development. Plans and specifications are ready and advertising for bids is to start soon—perhaps it is now going on—for a City Hall on the westerly side of the Square and for a State Office Building on the easterly side.

What is the status of the plan that was submitted in 1921? The easiest answer is made by way of illustration. There has been much agitation recently for a Convention Hall and the question of a site has been referred to the Buffalo City Planning Commission. Four sites have thus far been informally suggested in public discussions but until this moment no one has called attention to the fact that by the resolution of the Council of the City of Buffalo, adopted in March, 1922, a place was designated for the erection

of a Convention Hall and it is not one of the four sites just mentioned. How is it possible for such an incident to occur? A study of the records shows that a professional city planner was employed for about six months from April to August, 1921, and he was apparently paid not to exceed \$6,500. It is necessary to point out only to those unfamiliar with the technique of city planning as today conducted that, in so short a time and for so small a sum of money, it is impossible to produce a plan for a great city like Buffalo which will stand the acid test of time.

Since 1922 much has been accomplished in the way of specific improvements. Reference has already been made to the location and imminent development of the Civic Center on Niagara Square. A zoning ordinance has been put into effect. The Peace Bridge across the Niagara River has been completed. The New York Central Railroad has built a magnificent new station, which is going into use on the twenty-third of June. Lower Delaware Avenue, the street upon which the Statler Hotel is located, and some other streets, have been widened. Grover Cleveland Park is a splendid addition of 128.5 acres to the park system immediately adjoining the city on its northerly boundary. Cazenovia and Schiller Parks have been enlarged. The Buffalo Museum of Science has been completed and is an institution worthy of any metropolis. The extension of William Street is under way. The Recreation Survey, made by Mr. L. H. Weir, has proven of immense value. The Erie County Park Commission has been created. Already there are four county parks which have proven enormously popular. Any man with a car at his command can take his family to one of these parks and have as much enjoyment of open-air life over a week-end as can the people of exceptional means who can afford private residences in the country. The use of these parks for winter sports is rapidly growing. An airport has been opened. Sections of the old Erie Canal have been purchased and will be a great aid in future developments. A capital budget is under way. Our old Normal School has become a New York State Teachers College and in 1930 will begin to occupy a splendid new site,

formerly a part of the grounds of the New York State Hospital for the Insane. This new college will be centrally located in suitable buildings and will be a wonderful addition to the cultural life of the city. With the Albright Art Gallery and the Historical Society Building close at hand, it will constitute a superb educational center. The creation of an official City Planning Commission about August 1, 1928, was a most important forward step.

It is but justice to the Buffalo City Planning Association to point out that it has had a share in all of the progressive developments since 1922 which have just been described and in a number of instances its influence has been the decisive factor.

The Association has recognized the immense importance of public recreation in making a locality attractive as a place in which to work and live. It is making a systematic effort to increase the number of playgrounds and each year witnesses a few additions. The third campaign to stimulate interest in the possibilities of backyard playgrounds is now under way.

The Niagara Area is full of wonderful opportunities, one of the least appreciated of which is that the same management can operate two plants located on respective sides of the river and have, upon one shore, all the benefits of the American tariff and, on the other, the help of the tariffs and trade agreements of the British Commonwealth of Nations.

In recognition of the obligation to plan for the development of the American portion of this area as a whole there has been organized the Niagara Frontier Planning Board, an official body, and the Niagara Frontier Planning Association, composed of private citizens. These organizations have studied and planned and have had a large share in bringing to pass a number of specific accomplishments of importance which it would be outside the scope of this paper to describe. For three years the Niagara Frontier Planning Board received appropriations from Erie and Niagara Counties, which two constitute the Niagara Area on the American side of the river. Early last winter the appropriation for the planning board was cut out by the Erie County Supervisors. This

represented four-fifths of the total appropriation and the Board has refused to use the one-fifth furnished by Niagara County. There has been much informal discussion as to what to do. The situation is ripe for some new move. It has been suggested that the state might appropriate money for the objects to be accomplished by the Niagara Frontier Planning Board. The method followed in some other regions has been to raise a large sum of money by private subscription to be used in the working out of a regional plan. This has many advantages in the avoidance of clashing political factors and in the free use of the ablest unofficial talent but the prospect of raising a large sum of money is a deterrent. It has also been suggested that the County of Erie might set up a planning organization, thereby assuring unity and harmony over an area large enough to include all urban developments except along the Niagara County boundary, trusting to the ability of these two counties to work together where their interests meet.

Buffalo's budget for 1929 to 1930 contains an appropriation of \$7,500 for the employment of consultants by the City Planning Commission. Of course, that is too small a sum with which to make any real progress. The City of Buffalo has a hard time to keep its budget within legal bounds, while the County of Erie, of which the City of Buffalo is a part, is in a very comfortable financial condition. The boundaries of the City of Buffalo have not been extended since 1853, with the result that the towns immediately surrounding the city are growing much faster than the city itself. Except for artificial political boundaries, the city and these towns are one and both have a vital interest in a planning development which shall keep them growing in harmony. In view of all these circumstances, it is urged that the county would be a better planning unit than the city and would be justified in utilizing its financial ability to deal with the situation.

When the delegates start for Niagara Falls on Wednesday, they will be taken out Delaware Avenue. They will find it interesting to study this street as it illustrates a problem—the effects following the scattered invasion by apartment houses of a splendid long avenue of private residences.

For about a mile north from the Statler Hotel Delaware Avenue is turning to business. For the next mile and a half it is residential and cannot possibly become a business district for years and years.

As a beautiful residential street, Delaware Avenue is justly famed, but that portion of it has been invaded by apartment houses at strategic points. For several years not a single new residence has been built and several fine old ones have been torn down and the land left vacant.

Our zoning ordinance permits an apartment house to locate anywhere in a residence district. The effect of the erection of an apartment house is to depreciate the adjoining property for residence purposes. The promoter of an apartment house does not care to locate next to one. He prefers a site where his project will have light and air and attractive surroundings, amid residential homes.

Studies conducted by Harland Bartholomew and Associates show that not over from 2% to 3% of a city's area is required for apartment houses. Buildings of this type are springing up here and there about the residential sections of the City of Buffalo. The question is what to do about the situation, or is it too late to do anything? If nothing is done to control the location of apartment houses, the city will be dotted all over with them. Injury will be done to property for residential purposes and apartment houses will not be sufficiently massed to give the benefits of land values which flow from concentrated population. The area covered by apartment houses is so small in comparison with the total area that even a considerable part of the city cannot be built up wholly with them. Would it not be better to restrict apartment houses to the streets already invaded and keep them out of those which are at present free from them? Surely the natural effects of such a policy would be twofold: First, the invaded streets would be more rapidly developed with a uniform type of building—thereby improving values. Second, the residence streets would be protected from invasion. Their values and character would be preserved. If this policy is not adopted, is it not logical to expect that the city will

have a miscellaneous residential growth with an appearance of being in a kind of spotty and perpetual transition stage?

There is a section of the city known as South Buffalo. It has great possibilities and a present population of about 75,000. It is the section through which the rest of the city naturally passes to reach the hill country to the south—a splendid playground on all holidays. South Buffalo is not connected with the rest of the city by adequate main thoroughfares. Several plans to relieve the situation have failed to carry through. Proper access to and from South Buffalo remains one of our problems.

To summarize our situation, it is apparent that, so far as the city of Buffalo is concerned, we have, in the official commission and the association, the public and private agencies which are the first essentials in orderly progress. We have a press better informed than ever on city planning problems and ready and eager to be of help. We have a public opinion better informed than at any time heretofore. The number of specific improvements that have been secured within the last few years show ample capacity for progress. On the other hand, we have no accepted master plan for the development of the city or the regions about it and we suffer all the handicaps which the lack of that implies. There is waiting here an opportunity for leadership. It is possible for some group or groups to work out the plans for the future development of Buffalo and the regions adjacent to it in a way that will keep their influence an active factor for years and years and make their work a source of constant gratitude.

After Mr. Buck's story of Buffalo's planning progress, General Louis L. Babcock gave a most interesting account of the military history of the Niagara Frontier.

SOME INADEQUATELY DISCUSSED PROBLEMS OF THE LAW OF CITY PLANNING AND ZONING

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1. THE CONSTITUTIONAL STATUS OF ZONING

A pamphlet published in 1928 by Messrs. E. M. Bassett and F. B. Williams analyzes about four hundred judicial decisions dealing with zoning problems, the great majority of them rendered within the last five or ten years. The number of cases shows the importance which the subject has assumed. The compilation facilitates a survey of the legal situation confirming impressions created by a less systematic observation of the course of development and it invites a re-examination of principles with a shift of emphasis from theories of power to considerations of equity and practicability.

The present constitutional status of the law of zoning is that the power to control the character of urban or suburban improvements is acknowledged, while the limits of that power are still undefined. There has been within the last ten years a notable liberalization of judicial thought in the direction of conceding that health and safety and the suppression of nuisances are not the only foundations of control, and in several states the grant of enlarged power has been written into the constitutions in explicit terms.

2. POLICE POWER, GENERAL WELFARE, AND AMENITY

The terms with which judges and writers operate indicate an unwillingness to analyze closely; in the main they content themselves with insisting upon the police power and the general welfare as grounds of justification of what is done under zoning statutes. Police power is a very vague concept; in a sense it merely expresses the claims of the public interest to override private right, just as due process expresses the claim of private right not to yield to every remote or alleged public interest: in the struggle between

government and liberty, police power and due process merely represent opposite contentions, without otherwise contributing to the solution of the issue, although, like other catchwords, they are counted as principles in the common currency of legal and judicial reasoning.

Police power may become a more definite concept when contrasted with other powers: thus for the present it is true that the police power never justifies the taking of human life, whereas the power to administer justice does. A conceivable revolution in social philosophy might wipe out the distinction or even effect a reversal—a supposition about which it is unnecessary to speculate. The illustration merely serves to show that powers are better clarified by comparison than by definition.

I wonder, however, whether there is a justification for contrasting in similar manner the police power and the power of eminent domain, as is done by some of the most distinguished leaders of the zoning movement, merely for the purpose of disposing of claims to compensation. It is true that normally the police power demands sacrifices of private owners by reason of conditions for which they may be held accountable, while under the power of eminent domain a sacrifice is demanded of the individual merely because he happens to possess something which the government needs for the satisfaction of some public interest, and this difference has normally a decisive relation to the equity of compensation. But we know that the killing of live stock to stamp out animal disease is generally attributed to the police power, and yet the present legislative practice favors compensation, while the owner of newly subdivided land practically never receives compensation for the land taken for streets, but on the contrary practically always pays for the sidewalk in front of his lot, so that some courts have treated the latter burden as an exercise of the police power (*Dillon*, Mun. Corp. s. 1442), whereas in other cases the matter has been worked out as an equalization of burden and benefit, but on a practical view of the situation we might as well say that here is a case where eminent domain, on equitable grounds, does not call for compensation.

Whether zoning should be regarded as an act of eminent domain

or as an act of the police power, I do not undertake to determine at this point; all I contend for is that the problem of compensation should not be attempted to be solved on the basis of a mere difference in words.

When courts, at the present time, invoke the police power to sustain zoning laws, they nearly always add a reference to the "general welfare," and a similar reference is probably never omitted where an enabling act is drawn after approved models. It may, however, be well contended that the emphasis upon general welfare, far from clarifying the issue, rather tends to obscure one of its vital elements. For as an instrument of the general welfare, the police power respects a principle of limitation, which zoning violates, namely that restraints upon private right, unlike taxes, are not adjusted to "capacity to bear," but operate irrespective of class distinctions—a principle which must not be made a fetish, but which certainly is too valuable to be lightly ignored. We find it argued that the one family home district is conducive to health, and to the cultivation of all kinds of civic virtues: would any one contend that under the police power the state might compel the well-to-do to bring up their children in such homes instead of exposing them to the blighting influences of hotel life? Do we recognize different requirements for high grade apartments and for tenements, for the small factory and the factory of a million dollar concern? And, if not, does not equality of restraint under the police power represent a basic principle of regulation?

If these observations are well founded, the currently advanced theories of powers give us little aid. Is it not true that the control of urban development and improvement presents a special legal problem just because the ordinary criteria of the police power fail us when we advance from traditional health and safety requirements to the novel restraints looking to a totally different object which has been happily associated with the concept of "amenity"? And is it not wiser to seek justification for an acknowledged departure from old principles than to foster the delusion that there is no departure at all?

3. INTERDEPENDENCE OF PUBLIC AND PRIVATE IMPROVEMENTS

The interdependence of adjoining tracts of land is a feature of the law of real property which has not become a general qualification of the concept of ownership simply because it is not a uniform, but a highly specialized, condition; or rather, in so far as it is uniform we recognize it in the law of natural easements. So far as it is special, it is, in case of agricultural land, as a rule not sufficiently urgent that it could not be left to be taken care of by voluntary agreement. The demand for water power, drainage, or irrigation does, however, occasionally call for coercion, and when the courts recognized the validity of this legislation, a new principle of public law was established, the principle that unwilling owners may be forced into joint improvements.

In the case of urban land, interdependence and the need of cooperation have always been sufficiently urgent to demand a distinct and specific governmental organization: the city, town, or village. For centuries, it is true, the joint interests of the community related in the main to those aspects of its life which we comprehend under the term police. It was only in the 19th century, that an equally or more intensive control began to be exercised over the use of land, due to gradually rising standards of living, comfort, and sanitation. The most characteristic function which the modern municipality performs is no longer the maintenance of peace and good order, but the provision of what we call public improvements. We step from the police power to a power which has never been given a specific name. It is noteworthy that the provision of the typical improvements—streets, sewers, water supply—is not a legal duty of the municipality. To speak in terms used by the courts, the function is legislative, and not, like the *maintenance* of the improvement, ministerial, and the private owner who is injured by the neglect to provide urban conveniences has no cause of action for damages. This does not mean that the city is not morally and politically bound in the absence of compelling reasons to the contrary to install the necessary improvements at the appropriate stage of development, and influences are at

work which make for premature rather than tardy performance of this duty, but it means that the city is by no means a mere passive or impotent factor in the opening up of new subdivisions or building areas.¹ At the initial stage of a particular urban development we need not concern ourselves about questions of power and coercion; it is a matter of give and take, of reciprocal adjustment in the carrying forward of an enterprise in which private owners and the public are joint adventurers. The model zoning enabling act recognizes this when it proclaims as one of the purposes of the law "to facilitate the adequate provision of transportation, water, sewerage, schools and parks, and other public requirements."

An excellent discussion of this aspect of the matter is found in the 1925 Report of the Board of Zoning Appeals of Baltimore. We are told (p. 72) that "in the absence of zoning the design of storm water sewers can be certain only by providing for 100% occupancy of the lots, figuring practically 100% impervious surface," while (p. 75) "since the passage of the zoning ordinance the Sewer Engineer of Baltimore has been designing sanitary and storm water sewers based on the zone plan."

But why, it may be asked, under the circumstances may not the city establish planning and zoning schemes merely by virtue of the commonly possessed power to make improvements, without enabling zoning legislation? The reason is a technical one which may be explained by considering the differences between a street layout and lot improvements. Even without the legislative provisions for approval of plats which we find in many states, the city can virtually force a subdivider to conform to a city street plan simply by refusing to accept the dedication of non-conforming streets; for a full consideration of relative advantages and disadvantages will convince the subdivider that—barring exceptional conditions—his prospective purchasers will prefer public to private streets. The street being once laid out, its continuance along the lines shown on the plat is practically assured; the owner's accept-

¹ John R. Prince, The purposes of compulsory filing of plats, how far it can be lawfully required. Proceedings National City Planning Conference, 1924, p. 150.

ance of the condition imposed by the city is fully executed. But there is no possibility of a similar full and executed acceptance of conditions conceivably imposed by the city before agreeing to a subdivision with regard to structural improvements, still less with regard to the use thereof to be made by the owner; for that is a prospective matter and subject to change from time to time. The owner's agreement, in order to be made enforceable by the city, would have to be put in form of a restrictive or possibly even an affirmative covenant running with the land, obviously a complicated and inconvenient method of procedure which might encounter even technical legal difficulties regarding the city's contractual capacity and the operation of covenants. It is far more simple for the city to act through regulatory than through contractual provisions, and the requisite authority is supplied by zoning legislation. It is also obvious that the legislature, in giving the necessary power, merely grants an authority which expresses the organic relation of the city to private improvements, to the full fruition of which the city's own public improvements contribute their share, or, put conversely, that the owner's submission to the city's power merely reflects the dominant position which the city naturally holds in the joint adventure. Call this police power if you will; but let us realize the specific nature of the power.

Let us also realize what among other things the term police signified on the continent of Europe in the eighteenth century. The term was used to characterize the authority of the sovereign—a powerful monarch or a petty prince—to prescribe in detail the style and appearance of his cities and particularly the capital in which he resided. The beauty thus secured was part of good order, and the term "general welfare" would probably not have been objected to. You can see the results of this police power in the German cities of Mannheim, Darmstadt, Karlsruhe, Potsdam and parts of Dresden and Berlin, in France in Nancy and in parts of Paris. In these cities we have the visible embodiment and permanent memorial of what was called benevolent despotism. Far be it from me to deprecate the results entirely; there is much

to admire; and if the picturesqueness of the mediæval city was not rivaled, there was the compensation of light and air. A German author who gives us an excellent account of that phase of city building, deplors the false liberalism and sentimental individualism of the present day which makes similarly intensive control impossible.¹ I take it that zoning does not mean a reversion to such power. Not only must beauty not be purchased at the price of the "democratic way of life"; but even from the point of view of æsthetics a regimented beauty suffers in comparison with freedom that expresses itself in variety and even asymmetry.

4. POWER OVER IMPROVEMENTS AS A CONTINUING POWER

The foregoing argument in favor of municipal control is based upon the assumption that the city has to deal with undeveloped areas, and it is significant that English legislation is confined to these, speaking of land "in course of development." American legislation commonly applies to cities in their entirety, and hence we speak more often of zoning than of city planning. Our less conservative attitude is perhaps due in part to the greater difficulty, owing to haphazard suburban extensions, of clearly separating developed from undeveloped areas, partly to an ambitious effort to create stability by the fiat of the law. Does this less conservative attitude destroy the theory of control that has been set forth?

It may be urged that after an area has been partly or entirely developed and the city has not availed itself of its initial opportunity, that opportunity is now lost beyond recapture. But that would be a superficial view of the situation. It corresponds far more with realities to say that improvements already made represent an implied understanding between the cooperating parties, the owners and the city, and that the power that might have been originally exercised, is now continued as a power to preserve the character of what has been voluntarily established. Such a view

¹ W. C. Behrendt: *Einheitliche Blockfront*, Berlin, 1911.

will sufficiently account for all the authority legitimately exercised under zoning legislation.

If, however, we thus conclude that in dealing with new improvements in settled districts, or with proposed alterations of existing improvements or uses, the city stands substantially as it does in dealing with undeveloped areas, we still recognize that while the city holds a superior position, legitimately expressed in regulatory power, this superior position is due in the main to its dominating share in a joint undertaking. Keeping this point of view in mind, we shall gain a keynote to every discussion of zoning laws and ordinances and their application: the subordination of questions of power to questions of equity.

More important, of course, even than equity is the question of practicability, particularly long-range practicability; but that may be left to take care of itself, for if a scheme does not work, it will be ultimately abandoned. If the scheme works, but only by an undue sacrifice of equities, the gain to the community is too dearly purchased; and, in any event, justice is the law's primary concern. The trouble is that the idiosyncrasies of land make equity in zoning a very difficult problem, and here there is in consequence a real temptation to override private claims by quoting the old and simple adage: *salus publica suprema lex*.

5. AREAL ADJUSTMENTS AND THE COMPREHENSIVE PLAN

In the nature of things, areal adjustments are likely to present intricate problems, and the simplicity of a rule is apt to be in inverse proportion to its practicability. This is illustrated by the zoning ordinance provisions for setbacks. To forbid construction closer to the street line than any existing building, as Milwaukee does or at one time did, will obviously in many cases not work. Something more particular in the way of adjustment is required, and it is probable that the more meticulous the provision, the greater will be the approximation to justice, and that perhaps no mechanical formula will be able to dispense with the exercise of powers of variation by the Zoning Board of Appeal. It is therefore

not surprising that occasionally, instead of any attempt to formulate a rule, we simply find a reference to a map showing the setback lines, and a reference to the Board of Appeals for necessary variations.

Clearly one of the outstanding difficulties of the law of zoning is the irreducibility to type of the situations with which it deals. Human relations being determined in part by free choice tend through the habit of imitation to conform to types, which, if not created by law, the law at least can utilize. By conveniently ignoring details, it is also possible to classify areas by types, but nature is not as accommodating as man, and it is rare that any one area runs true to type; in fact, except in the case of an island, the individuation of areas is artificial or arbitrary.

The irreducibility of areas to types entails the irreducibility of equities to abstract formulas, and the consequent loss of one of the main safeguards of equal justice, necessitating the search for some substitute. Fortunately the city planner can summon to his rescue another principle, less commonplace, but still effective within bounds, namely, that the standard of human performance is apt, although not sure, to rise in proportion to the magnitude of an undertaking. Hence the device of the comprehensive plan as one of the main features of zoning legislation. It gives some assurance of appropriate coordination, qualified of course by necessary respect for existing maladjustments, and by regional limitations of municipal power.

There are difficulties in the way of maintaining the integrity of comprehensive planning which will be presently discussed. But even in its initial working out, it can assure at most relative freedom from partiality or jobbery, and does not furnish a sovereign solution for difficulties inherent in the situation. There is one major problem inseparable from any plan, which has hardly received the attention it deserves—the problem, namely, of determining the boundaries of areas marked off for unit treatment.

It does not need demonstration that, with a merely geometrical dividing line, or even the dividing line of an ordinary street, the

edge of a residential district where it adjoins a non-residential district is less desirable than its center and that without special positive devices, a resulting inequity cannot be avoided; it is a shifting, and not an elimination, of the inequality, if in determining set back lines special consideration is given to corner lots. I know of no zoning law which faces, let alone solves, this problem. It is true that the final determination of boundaries is preceded by hearings, but a hearing while it tends to assure the observance of equities, cannot by itself, without additional powers, remove inequities inherent in a situation.

6. MAJORITY CONSENTS, AND COMPENSATION

Occasionally we also find in zoning laws or ordinances a recourse to majority consents as a solvent for doubtful cases; but this contrivance, far from removing the difficulty of differential consideration, rather accentuates it. The United States Supreme Court has made it impossible to vest a majority of owners with the power to establish a building line (*Eubank v. Richmond*, 226 U. S. 567), but holds it to be constitutional to permit a municipal prohibition to be lifted by such a majority (*Cusack v. Chicago*, 242 U. S. 526), a distinction without a difference, or at least a distinction beyond my power of comprehension.

If there is a conflict in the two decisions, it at least reflects the two-faced aspect of the majority consent as, on the one side, an instrument of overcoming captious and unrepresentative opposition, and on the other side, as an instrument of freezing out legitimate minority interests. To reconcile majority power with due process, its abuse should be guarded against. The Supreme Court of Illinois has justly held purchased consents to be invalid (*Doane v. Chicago City R. Co.*, 160 Ill. 22), but difficulty of proof renders this inadequate, and the least that the law can do is to require each majority owner's consent to be accompanied by some reasonably adequate form of assurance that it was not given or obtained for a personally discriminating consideration. But even with this safeguard the majority consent is unsuitable where there

are factors setting the minority interest apart for special consideration.

Theoretically, the simplest method of equalizing detriment and benefit resulting from the unit treatment of areas would seem to be the grant of compensation to the owner who is forced into a nexus which is disadvantageous to him, and the general absence of compensation provision from our zoning laws therefore calls for comment. It is of course well known that restrictions are occasionally attended by serious loss to particular owners, and that while compensation would place the validity of the restriction on a reasonably secure basis, the drafters of zoning laws prefer the risk of invalidity. It is then regarded rather as a triumph for the zoning principle if a court, though with expressions of regret, sustains a burdensome and doubtful restriction (*Amer. Wood Products Co. v. Minneapolis*, 21 F. 2d, 440); while injured owners take comfort in the recent decision of the Supreme Court, which under the Fourteenth Amendment gave the relief which the highest court of the state, in reliance upon the police power, had denied (*Nectow v. Cambridge*, 48 S. Ct. 447, reversing 157 N. E. 618).

The English law recognizes the principles of compensation, the question and the amount of damage being, in accordance with the general practice of English legislation, settled by arbitration (Town Planning Act, 1925, s. 10). Compensation is, however, denied under the following circumstances: if the injurious provision is also contained in an act of Parliament, or if it would have been enforceable if contained in local by-laws (ordinances); or if the provision prescribes space, or number, height or character of buildings, or if it is one which the Minister, having regard to the nature and situation of the land affected, considers reasonable for the purpose.

The last-mentioned qualification would be entirely inadmissible in America; probably also the compulsion to arbitrate, without which the determination of damages would be apt to become a cumbersome matter. Altogether the circumlocutory attitude of the English statute makes us wonder whether compensation is a

reality or a gesture, and throws additional light upon the American hesitation to touch the problem at all.

7. COMPROMISE ARRANGEMENTS

There remains the remedial power of the Board of Zoning Appeals—that original and ingenious institution devised to cover a multitude of sins. It might be interesting to make a detailed study of the decisions of these Boards to ascertain in what proportion of cases the relief asked was called for by the differential situation on the border of a district, and to what extent the relief given consisted in positive contrivances adjusted to that differential situation. Conceding its beneficial effects, the question remains whether a power given in such oracular terms offers, in addition to practical remedies, also a solution which is intelligible as a matter of principle—a question which involves the whole problem of a satisfactory theory of zoning.

In undeveloped districts it may be possible to eliminate the legal problem by the appropriate treatment of boundaries. Border difficulties being difficulties of proximity, the effect of distance upon amenity is a question worth studying. A thoroughfare 800 feet in width, like the Midway in Chicago, makes it a matter of indifference how the property on the other side is improved, and it is even possible that the distant view of steel furnaces gives a touch of picturesqueness to the prospect from your residence. If wide separating spaces are not obtainable, trees may be used as screens; the problem may not always be a simple one, but in laying out new subdivisions it ought not to be beyond the ingenuity of the city planner to solve it; at any rate, it does not deserve the entire inattention which it now receives.

8. OBSOLESCENCE AND DEZONING

Even more serious than the difficulty of border-line property is that of obsolescence, if that term may be used. The neglect of this problem is perhaps due to two causes: the one the fact that zoning in America is barely fifteen years old, while even with our

rapid turnover the life of a residence district is ordinarily not less than thirty years; the other, the fond hope that zoning will put an end to obsolescence. It may, of course, be inopportune to encumber present-day projects with doubts drawn from a relatively remote future; but the illusion that zoning can fix the character of neighborhoods in permanence should not be entertained. If zoning can produce the standard of stability that is characteristic of cities in older countries, it will render a valuable service, but more than that can hardly be expected, and even such stability will mean a change in the national temperament which at present combines the lowest degree of local attachment with the highest degree of sensitiveness as to neighborhood associations.

Legally, all zoning enabling acts contemplate the possibility of dezoning, the power to amend zoning ordinances serving that purpose. The provisions do not show on their face, whether they are intended to remedy particular errors or hardships, or whether they contemplate readjustments called for by the changing character of neighborhoods; undoubtedly, however, they may be made available for either purpose. The power is commonly safeguarded by provision for hearing, by giving opportunity for protest by a stated percentage (20%) of the owners affected, and by the requirement of more than a simple majority of the local board or council to override a protest. The standard enabling act calls for a two-thirds majority (so also the Illinois law), the New York Town Law (Art 17-C, s 349 *s*) for an unanimous vote; it is doubtful whether a less than practically unanimous vote affords any protection at all, and whether even the requirement of an unanimous vote is a protection in those cases, in which dezoning is not inspired by purely equitable and legitimate considerations.

I have referred to the "comprehensive plan" as one of the valuable features of zoning laws from the point of view of equity; obviously the benefit of comprehensiveness is lost in the amending process. The problem is one common to all systematic legislation: the guaranties inherent in the original coordination are jeopardized by piecemeal changes. The risk appears to be accepted as in-

evitable. It might be worth considering whether legitimate alterations due to lapse of time could not be taken care of by an assured prospect of periodical comprehensive revision, leaving alterations due to particular individual hardship to be dealt with on another basis. Those who stake their faith on comprehensiveness must surely be disturbed by such an unceasing flow of amending ordinances, as we find, for instance, in Chicago; and it is not necessary to credit the rumors current as to the influences which procure their enactment to be satisfied that they tend to discredit the entire principle of zoning.

9. FAIR AND UNFAIR NON-CONFORMITY

It is one thing to call attention to difficulties and express doubts, another thing to offer some constructive suggestion; and if I proceed to do the latter, it is naturally with hesitation.

I am inclined to think that the introduction of zoning effects a sufficient alteration in property relation to call for the formulation of a new principle. That principle must involve either the concept of amenity or the concept of conformity.

The idea of amenity carries us beyond the law of nuisance, but stops short of the securing of beauty by the fiat of the law; as regards beauty, I am willing to concede the difference between eminent domain and the police power. The common law of nuisance fails to furnish an adequate solution for the needs of inevitably offensive industries; these needs were very much better taken care of by licensing legislation than by the common law, but probably receive their only satisfactory recognition through intelligent city planning. However, industrial zoning simply removes practical difficulties—it does not create any legal problems with which we have not long been familiar.

Every one knows that the crux of the zoning problem lies in the residential district; and that when we speak of amenity we have in mind residential preference. There is another aspect of amenity in the disfigurement of places of historic or scenic interest, and in outdoor advertising; but these are matter of separate con-

sideration, and, intelligently considered, should not present any legal difficulties in the way of public regulation or control.

Residential preference is controlled by physical and by social conditions, the latter being the more powerful. As illustrating the latter, however regrettable prejudice may be, the coming of colored people into a district readily occurs to one who lives on the South Side of Chicago. Even if it were not for the position taken by the United States Supreme Court, a legal color line would probably be impossible in the Northern states; and generally speaking any attempt to give official recognition to social differences would be utterly futile, partly because it would be repudiated by public sentiment, partly because it would be impossible to find an appropriate legal formula.

And the difficulty of finding a legal formula probably also applies to the physical conditions that constitute amenity. Rising above the mere avoidance of offensiveness, and falling short of even conventional standards of beauty, it inevitably means one thing to the person of very moderate means, and another thing to the person of great wealth. It is probably true that, generally and abstractly, amenity can never be expressed otherwise than in relative terms. And this throws us back to the concept of conformity.

Conformity not only is a relative concept, but it also is not, even in its relative operation, an absolute ideal. Indeed, could we view the matter abstractly, a strong argument could be made for placing non-conformity above conformity in the scale of moral values. If therefore in the law of zoning we operate with the idea of conformity at all, it must be done with considerable discrimination. By substituting for a duty of conformity a duty to abstain from unfair non-conformity, we at once reach clearer ground, and we gain the benefit of something like an analogy to the duty to abstain from unfair competition, which has been established by the Federal Trade Commission Act of 1914, and we are at once reminded that the law against unfair competition, and the law against restraint of competition, established by the Sherman Act

of 1890, are correlative to each other, and part of the same economic policy.

So in the law of zoning there is correlative to the duty to abstain from unfair non-conformity, the right to be free from coercion into unfair conformity. But note the peculiar way in which the law handles these equities: the duty to abstain from unfair non-conformity has only a legislative status, while the right to be free from coercion into unfair conformity has in the last resort a constitutional status. Putting it in more familiar terms, the only protection there is from unfair non-conformity is through zoning legislation and through the concrete operation of its machinery, for the zoning laws fail to establish in explicit terms any general principle of fair conformity, and no such principle is recognized by the common law; on the other hand, a right to non-conformity under appropriate conditions is recognized by the courts as part of constitutional liberty, and a resisting owner, in addition to the initial hearing and the recourse to the Board of Appeals, has a right to invoke judicial relief resting on general principles, whether or not explicitly recognized by the zoning laws.

10. EQUITY OF PROTECTION FROM UNFAIRNESS

The failure to place both fair conformity and fair non-conformity upon clear and equal foundations of equity is, in my view, the weakness of the present legal theories of zoning. I speak of theory rather than of practice. In practice the combined safeguards of zoning legislation and of the common law probably work out as well to protect legitimate non-conformity as can be expected, making allowance for the fact that no adequate solution has as yet been suggested to deal with the problem of the border property. So far, however, as a right to a fair conformity on the part of others is concerned, there is also a practical failure of justice due to the purely legislative status of this right, a failure occasionally manifested in the operation of dezoning ordinances. It is under the circumstances significant that the Chicago papers recently reported

a circuit court decision granting an injunction against the de zoning of property. Whether the Supreme Court will take the same position, I do not know; but the decision seems to me a step in the right direction toward the recognition of a general principle which is implicit, but not explicit, in zoning legislation.

It is a further question whether the protection of districts already wholly or partly improved could not with advantage be left to the operation of general principles rather than be covered by zoning ordinances. The refusal of English legislation to cover districts other than those "in course of development" indicates inherent difficulties of which we perhaps make too light. It is worth considering whether an established residence district cannot after all be dealt with most equitably by applying the concepts of fair and unfair non-conformity. The residential district faces two species of detrimental changes: the one is of a profiteering or even blackmailing character, and should be within the prohibition of unfair non-conformity; the other, more serious and insidious, anticipates an inevitable future downward development, and means that a far-seeing owner gets out or accommodates himself without undue loss. To his neighbors who have more optimism or less perception, or who lack the same opportunity, that owner seems grossly unfair, but it may well be that he stands justified in the eyes of the impartial by-stander. It is very likely that from a series of adjudications his non-conformity will emerge as fair rather than as unfair. As the zoning laws stand now, his relief lies in de zoning, which is subject to no principle at all; and if this is denied by the politically constituted authority, he suffers loss, until the eyes of even the blind are opened to the tragic fact that the district cannot be saved.

Whether a similar system of relief on the basis of general principles could also be made applicable to the ultimate decline of areas originally developed under zoning restrictions, is a question that could arise only after the lapse of many years, and would present much the same situation that exists where property has been acquired subject to restrictive covenants.

If the question of fairness of conformity and non-conformity is to be left for determination from case to case, that determination would probably have to be committed to an administrative tribunal, whose decisions would not be simply declaratory of clear rights and obligations, but would have to find solutions on the basis of compromise and positive contrivance. The present institution of the zoning board of appeals would be the prototype, and would receive a wider sphere of operation. It would also be impossible to dispense with ample revisory powers vested in courts of justice.

The foregoing observations contain nothing that is revolutionary in the law of zoning; they merely offer a somewhat new interpretation of factors and tendencies which are already at work, and which it is the fashion to gloss over. When zoning was new and had to win its way through legislatures and the courts, theories not linking up with familiar categories of power and policy would have been no help to the cause; the legal pioneers in the movement were wise to proceed as they did. But now that the battle is practically won, it is legitimate to call attention to shortcomings of the existing law and to try to put forward a more consistent and perhaps a more equitable view of the law of zoning.

DISCUSSION

EDWARD M. BASSETT, New York City: In the early conferences on zoning in New York City I remember well that Lawson Purdy said, "If we pay too much attention to Constitutional requirements as heretofore set forth by the courts, we will never get anywhere. Let us try to frame a method that will be workable, and then make it agree so far as we can with court pronouncements."

So we worked out our zoning with constant regard for health, safety, and morals. We did not know what general welfare meant, or at least how it could help us in defining the zoning principles. We knew that dark rooms, dark streets, dust, noise, flies, vermin, vibration, all those things have some effect on safety, or health, or morals, and our code was built up with great trepidation on these bases.

After it was adopted we all knew that the trouble had just begun, and some judges and a good many lawyers said that the courts would disapprove. Again Mr. Purdy said, "If this extension of the police power is confined to New York City alone, it is just a question of time when the courts will overthrow it." We organized the Zoning Committee which should bring zoning to the attention of all the cities in the United States, and all the state legislatures.

Now Professor Freund properly has said a great deal about the purpose of zoning being to bring about a compulsory conformity, but we never mention that in the development of zoning, and we have always said that if zoning regulations cannot be supported by proof related to health, safety, and morals, then they should not be enforced.

It was a little hard to see why retail business coming into a residence district really affected health and safety, but after the testimony of Dr. Kober in a case under the city of Washington zoning ordinance, the judge decided much to his own surprise that a grocery store was such an invasion of a residence district as to be excluded by zoning. Dr. Kober gave instance after instance of the transmission of disease not by anything poisonous which the flies would take from the grocery store, but by the germs carried by flies to the foodstuffs in the grocery store. The other side had nothing to meet this evidence. Little by little the cases favoring zoning have been increasing.

That was also about the time the courts began to say that they would not manage the details of zoning districts, but would leave that to legislative bodies, and if communities could prove the substantial relation between the community health, safety, and morals, and the zoning regulation, then the courts would uphold it.

I want to commend in the very highest terms the note that Professor Freund has struck today. We must be most careful about our zoning ordinances in the United States. The errors are not so much with state enabling acts as with local ordinances. Some suburban places would deliberately try to go very much further than the police power allows them, and preserve not only amenities, but also fanciful and somewhat hypercritical exclusiveness. They are even trying to exclude churches and hospitals from residential sections. Now we ought not to force hospitals to go into business districts or among the boiler shops, and how can any residential locality be so exclusive as to rule out a church from a residential district? Even schools have been excluded in some

places. We should all be warned that zoning should not be made fanciful; it can never take the place of covenants, and it must not be made confiscatory. Professor Freund has done a real service in pointing out these possibilities of misuse.

ALFRED BETTMAN, Cincinnati, Ohio: I would like to dissent somewhat from the position of both Professor Freund and Mr. Bassett. I think that the decision of the Supreme Court of the United States in the case of *Nectow vs. City of Cambridge, Mass.*, raises a danger signal. The court invalidated the district boundary line which the ordinance of the City of Cambridge, Mass., had set up, on the ground that it had not been shown that the health of that particular neighborhood would be affected by a non-residential structure; in other words, the court required the police power justification to come from the immediate effect of a non-residence use in the immediate neighborhood.

I am rather skeptical as to whether a grocery store next door to my house is going to affect seriously the health of my children. There have been mighty healthy kids raised over grocery stores. I can not help feeling too some doubt of my right of controlling what my neighbor shall do with his lot by the use I make of mine. Why should the first fellow decide what the next fellow may build? Is not the zoning ordinance's justification rather that it represents a plan of city building which will promote over the entire city a greater degree of health, convenience, and safety, by virtue of its allotment of the territory of the city among the various types of uses, than if the city's territory were entirely unregulated?

When we are listening to stories of Radburn, where agricultural land is turned into urban land, we see immediately that such a community is bound to have greater freedom from accident, and a greater chance of health because of its comprehensive scheme of development, but it takes a little more imagination to see that the same thing is true in communities already somewhat built up. In the developed community there must be some adjustment of our zoning scheme to the existing situation, but our purpose is the same—to have a plan of development of the whole urban territory from which will result a greater degree of health and safety. If the doctrine in the Cambridge case that each part of a zoning ordinance must demonstrate its relation to the health and so forth of the immediate neighborhood, I think we are in for trouble.

LAWRENCE VEILLER, New York City: I want to get this discussion back to Professor Freund's principles, for I think he has given us the most important contribution to the science of zoning since the movement was started. He has practically said to us: "The time has come, gentlemen, to think in terms of 1929 and the future, and not in terms of 1913." We are now buttressed by the decisions of so many courts, and especially the United States Supreme Court, that the time has come when we can consider this subject from the point of view of amenity which Mr. Bettman, in the latter part of his speech, described so well as the welfare of the community, the right to community development. He believes that it is within the province of a community in this great democratic country to say, "We choose to have our community developed in an orderly fashion," whether or not there is a relation to health or safety in that development.

I know that there has been a great deal of sloppy zoning in this country. Mr. Bassett is quite right in saying, "Now don't, because Professor Freund has emphasized amenity, write zoning ordinances that are based on esthetic considerations." Of course, we must not do that, but let the leaders in the zoning movement, especially those skilled in the legal side of it, give us a program by which we can develop zoning into its next stage on the new Freund basis.

RICHMOND MOOR, Schenectady, N. Y.: In the Cambridge case which has been cited by Mr. Bettman and others, I do not find so much a judicial impairment of the zoning principle as a caution to base zoning ordinances on a careful analysis of existing conditions. The court holds that the municipality had an unquestioned right to adopt the zoning ordinances, but the facts in this particular case were that the property of the plaintiff was zoned for residence although it was hemmed in on all sides by business property. The contention of the plaintiff was that under these circumstances the provision in the ordinance was not designed to promote public health, safety, and general welfare, but was an arbitrary exercise of the police power not based on proper investigation and analysis. There are bound to be these arbitrary exercises of zoning authority, and all the Court points out is that it will not sustain an ordinance carelessly or arbitrarily drawn.

COLONEL U. S. GRANT, 3D, Washington, D. C.: In Washington we zone not only for health, safety and public welfare, but

specifically for "preservation of property." After a comprehensive plan has been made, the zoning ordinance based upon it determines the areas for definite uses. If in the administration of the zoning ordinance the Board of Appeals or the Zoning Commission extends, let us say, either the residence area or the business area, does this extension not result in an actual depreciation of property? Both the residential area and the business area in the vicinity are worth less because the supply of each is increased. Moreover, is it fair to change the use of residential land to a business use when the price paid for it by its owner has been a residential price? It seems to me that he is given an unfair advantage over the owners of business land who have paid for it on the basis of business value.

MR. FREUND: I should say that zoning could not be extended to affording relief to depreciation of property values. I cannot see where the line would be drawn, and I am sure the courts would be entirely opposed to such a principle in spite of the fact that I realize that property values are a factor in zoning. My thought is rather that our search should be for a principle that will help solve the greatest number of individual cases. There is no principle that will help us in every difficulty. If I suggest the theory of fair and unfair conformity and non-conformity, I do not, of course, rule out the more fundamental consideration of safety, health, and morals. I merely add another principle because safety, health, and morals do not appear to me to be adequate.

JEFFERSON C. GRINNALDS, Baltimore, Md.: Just a word about the legal situation in Maryland with regard to zoning. We have had our court decisions which have almost ruined our chances, but we now have an enabling act and are about to present a new zoning ordinance which won't look like any zoning ordinance that has ever been seen before. It will not say that in a residence district nothing shall be erected except dwellings, churches, schools, and so forth, but it will say that in a residence district nothing shall be excluded except stores, factories, and so forth, and it will define stores as "stores for sale of inflammable goods or stores where goods are kept in inflammable containers." In other words, it will use the words of the court in previous cases, and will try to show *in the ordinance* the relation of store districts to the safety and health of the people. It is not the single store, of course, that imperils health, it is the store neighborhood, and so our effort must

be to show the judges that store neighborhoods must be defined and not allowed to grow up anywhere.

RUDOLPH P. MILLER, New York City: My experience with the Goldman case in Baltimore led me to believe that we had not collected enough evidence to show that the introduction of a store in a residence neighborhood decreases the safety of the residence. I happened to be working in Niagara Falls at the time, and it may interest you to know what I found there after four years of examining fire records. I am not quoting exact figures, but my impression is that the average loss by fire in a purely residential neighborhood, that is, in one or two family houses, was about \$250 a fire; a fire in an apartment house neighborhood, about \$350; in a dwelling over a store, \$600; in an apartment over a store, \$900. I think that an investigation of fire hazards in many cities with respect to comparative losses in different kinds of buildings will help us in our presentation of zoning cases. Such an investigation presents difficulties, but so far I have myself managed to get reports from seven cities, and although not satisfactory, they somewhat substantiate the figures from Niagara Falls. The conclusion to be drawn from the figures that I have is merely that the hazard in the combined residence and store building, whether private dwelling or apartment, is greater than in a purely residential building.

MRS. EVA G. OSGOOD, Melrose, Mass.: The effect on assessed valuations of changes in the zoning ordinance seems to me to be a serious matter for consideration. I am thinking particularly of the extension of business use in residence neighborhoods. A whole block of residences may have their assessed values increased, while as a matter of fact the possibility of selling, because business has not yet arrived in that neighborhood, is lowered almost to the vanishing point. Should not assessments be determined rather on the basis of capitalizing the real income on property?

RECENT TRENDS IN BUILDING LINES, SUB-DIVISION CONTROL AND THE ACQUISITION OF OPEN SPACES

ALFRED BETTMAN, Member, Cincinnati Plan Commission

It cannot be said that the trends in building lines, platting regulation and open space acquisition have indicated anything very novel or new or different than has been described in previous Conferences and in the existing literature on the subjects. The texts of statutes, ordinances and regulations show that the communities in the United States are dealing with these subjects boldly and creatively, and that the various ideas which have evolved from the discussions of these Conferences and literature on the subjects are being experimented with. The judicial decisions show a constantly growing realization of the aims and possibilities of city planning and furnish considerable encouragement for an experimental and creative approach by the legislative and administrative authorities, but have not as yet produced definitely statable sanctions or rules making certain, as a matter of law, that which is doubtful and groping now or in the trial and error experimental stage. The communities are actually accomplishing more than the law unmistakably allows.

Building lines may mean two things, that is, that expression may mean future street lines, lines planned or proposed as the future location of street boundaries, or the term may be used to refer to lines within private property beyond which buildings are to be more or less prevented or reduced by law or agreement. In its latter sense, for instance, the area regulations of zoning ordinances are building lines. The front yard or set-back regulations of a zoning ordinance may keep clear of buildings a space which thereby can in the future be converted into a part of the street without the burden of paying for the cost of buildings; but if we are to develop

anything like an exact terminology, and if we are to present and face and meet our legal problems frankly and clearly, we must come to differentiate between those types of measures, such as zoning, which regulate the use of private property exclusively as such, from those which regulate the use of private property as a step toward the conversion of the same into public property.

Turning then to the subject of prospective street lines, often called mapped streets, the modes by which they are being or sought to be established may be stated as five in number, namely:

- (1) Through platting or subdivision regulation;
- (2) Through the actual condemnation of the land for the street;
- (3) Through the appropriation of the street line as distinguished from the appropriation of the land itself;
- (4) Through a police power street line made a part of or provided for in a manner similar to zoning legislation; and
- (5) Establishment of street lines through exercise of the police power but separate from zoning legislation.

In the legislation of some states, these modes are mixed, as, for instance, partly police power and partly condemnation of the land.

The recording of plats, with the dedication of the spaces shown thereon as streets, has been a customary mode of establishment of street lines. The trend in this field is toward an ever-increasing participation by the public in the determination of the location of the streets in the subdivision of land, as well as an ever-increasing application by the public of planning methods and an ever-increasing participation by planning commissions in the administration of the public's regulations. The federal model city planning act makes the planning commission the exclusive public authority in the matter of approval of plats, and many states either preceded or have followed this model. Other states retain the council or other legislative body as the approving authority, but require submission of each plat to and a decision upon each plat by the planning commission. Increasingly also the planning commission is either required to or voluntarily does have a thoroughfare plan against which to check and which to apply to the individual sub-

division plat. There seems to be as yet little attempt on the part of planning commissions to plat neighborhoods, districts or areas other than the planning of the major thoroughfare system for the purpose of applying such more detailed and localized plans in the process of passing upon the subdivider's proposals.

In the year 1928 the Supreme Court of Michigan, in the case of *Ridgefield Land Company v. City of Detroit, Michigan*, 1928, 217 N. W. Rep. 58, supplanted the case of *Windsor v. Whitney*, 1920, 94 Conn. 357, as the leading case on the subject of the power of the community to regulate street line location through subdivision plat regulation. The Connecticut decision has never been quite clear in its scope and effect, but furnished a general authority for the proposition that the subdivision plat must conform, in its street and even in its building lines, to the community plan. The Michigan case upheld this general principle as regards the width of a main thoroughfare, and upheld the right of the City of Detroit to require an 86-foot highway through the subdivision at the location at which the main thoroughfare was designated in the city's thoroughfare plan. The particular subdivision was a large one, something like 80 acres, and whether the same principle would be applied to a smaller subdivision remains an undecided question. Detroit has acquired many miles of 86, 102 ($\frac{1}{2}$ of 204) and 60 ($\frac{1}{2}$ of 120) foot streets by dedication in this way, though not all by compulsion, as 106 feet is the compulsory maximum under Detroit's regulations. The decision is a most encouraging one, recognizing the right of a community to determine the location of main highways and impliedly recognizing the right of the community to compel each subdivision to contribute its part of the street system. The regulation of land subdivision, with careful application of planning principles, remains the chief and most promising mode of the establishment of street lines.

Turning to the second of the modes of fixing street lines, namely, the condemnation or appropriation of specific land for street purposes, of course the community has always had the power to appropriate land for streets, and, in relation to this mode of estab-

lishing street lines, modern planning methods simply furnish an intelligent basis for the location of the land to be appropriated, as distinguished from haphazard or opportunistic locating of the streets. The increasing use of city and regional planning and the increasing enactment of planning legislation indicate a trend toward this increasingly intelligent and scientific method of procedure. The Wisconsin statute which provides for the establishment of the street lines by means of county plans, leaving it to the community to acquire the necessary land when and how it can (under which statute Milwaukee County has fixed street lines on 215 miles of highways), illustrates this recognition of a use of planning methods and planning bodies in the locating of street lines even though the old modes of acquiring the land, gift, purchase and appropriation, be used.

The California statute of 1927 represents what might be called a mixture of police power and eminent domain, using a police power establishment of the street line as the starting point and then meeting the protesting property owner by acquiring his land or the public right to the street line through some form of purchase or appropriation. It seeks to meet the practical problem of paying the costs of street widening and street extension by, in the first place, fixing a short limitation of time (3 months) within which protests can be made and, in the second place, furnishing a simplified mode of determining the compensation to be paid for the land. The police power is used to establish the line, but the property owner can within a short time either force the abandonment of the line or the taking of his land. The proposed amendment of 1929 lengthens to six months the period of protest, provides for a board of appraisers and authorizes the appropriation of the street line reservation as distinguished from the appropriation of the land itself.

The third mode to be discussed is that of the appropriation of the street line, that is, the establishment of the street line by the appropriation of a reservation of the street line and an easement for keeping the planned street space clear of buildings, the community

being required to pay the amount of compensation or damages awarded in the appropriation proceedings. This has been on the statute books of many states for many years; and there are some conspicuous successes in the use of this mode, as, for instance, Hartford, Connecticut, which regularly establishes street lines by a species of eminent domain in undeveloped areas. Indianapolis has by this method fixed the lines for $2\frac{1}{2}$ miles of boulevards. Other cities have used or are using this eminent domain method of acquisition of street or building line reservations and easements. On the whole, however, the trend is not in this direction, and evidently communities generally are unwilling to expend money for street line reservations or easements long in advance of the time when the street is to be opened and built.

The next of the five classes or modes of street line establishment to be discussed is that of incorporating a street plan as part of a zoning ordinance or enacting a street or building line ordinance in the form of regulation by districts analogous to a zoning ordinance. Quite a number of municipalities seem to incorporate a street plan, representing proposed future street lines, as a part of the zoning ordinance and, as a part of the area regulation of the zoning ordinance, require buildings to stay within the lines shown on these plans. I have not come across any judicial decision upon this mode. A type of ordinance used by several cities is one which is not a general zoning ordinance and which covers the subject-matter of street or building lines exclusively, but which does this by methods analogous to general zoning, that is, by district regulations and a districting map. The Cleveland ordinance is of this type and, in the sole litigated case in which it was attacked, *Weiss v. Guion*, 17 Fed. R. (2d) 202, the decision supported the ordinance. A recent case in the Supreme Court of Louisiana, *Sampere v. City of New Orleans*, Supreme Court of Louisiana, 1928, 166 La. 776, also upholds this method, basing its decision on the decision of the Supreme Court of the United States in the case of *Gorieb v. Fox*, which, however, properly interpreted, seems to be a front yard regulation rather than a street or building line case.

The fifth mode to be discussed is the pure and unadulterated police power establishment of building or street lines by the method incorporated into the New York legislation. Under this method, the city, through its planning commission and council, adopts a plan or map showing the proposed or planned location of the street lines in the area covered by the plat or map and prohibits buildings within the mapped or platted street lines, with or without provision for appeal to an administrative board like the zoning boards of appeals. (New York, of course, has an appeal provision.) The trend of legislation is unquestionably in this direction, and, without having any exact statistical information, there can be no doubt that the cities are increasingly experimenting with this method. There is no exact information forthcoming as to the success of these attempts in actual practice or the results. Indeed, the method is still too new to have demonstrated either its practicability or effectiveness. The judicial decisions are too few to permit much in the way of generalizations as to the law of the subject and are either too localized in their facts or vague in their principles to permit of deduction of simple or authoritative statement of the governing legal principles. The few decisions may be said to be both favorable and unfavorable. The most favorable decision is that of the Supreme Court of Massachusetts in 1928 in the case of *Slack against Building Inspector of Wellesley*, 160 N.E.R. 285. Massachusetts had two statutes, one that authorized building regulation, including regulation of location for fire prevention and for the preservation of life, health and morals, and another that provided for the establishment of building lines by appropriation, that is, with compensation. Wellesley passed an ordinance providing 45 feet from the center line of the street in some districts and 50 feet in others. The ordinance in its language seemed more clearly referable to the police power statute than to the eminent domain statute. The court upheld the ordinance as a valid exercise of the power under the police power statute. There was no map which represented a clear and frank street line motivation of the ordinance, and for that reason the case cannot perhaps be inter-

preted as a sanction for police power prohibition of buildings in mapped streets. It furnishes, however, some favor to the growth of the police power in this connection. There is a California decision, *Thille v. Board of Public Works*, 52 Cal. App. 927, which furnishes support for police power building lines. From Memphis is an unreported case, *Haase v. City*, likewise. On the other hand, the case of *Granville v. Krause*, Supreme Court of New York, 1928, 228 N. Y. Supp. 204, is not quite so favorable though not clearly adverse. The statute or ordinance provided for a prohibition of building permits within the line of streets as shown on the village plan. The court held the village plan to be too visionary, in that it lays out streets in territory not yet occupied. That particular judge plainly does not fully comprehend the purpose of planning. The court declared the plan too much guesswork and too vague to furnish a basis for the legislation. Perhaps the court was right; that is an argument for careful and good planning. The court also objected that the plan was not comprehensive, was not a complete districting plan. That is a good argument for comprehensive planning. The case of *Nusbaum v. City of Norfolk*, Court of Appeals of Virginia, 1928, 145 S.E. Rep. 257, is an interesting case with implications, at least, adverse to police power establishment of building lines. The city had enacted an ordinance establishing a building line and had later repealed the ordinance. A property owner who had adhered to the ordinance while in effect sued to prevent his neighbor from building up to the old street line after the repeal of the ordinance. The court held that there was no vested right in the building line, that is, there was no private vested right in the building line which would allow one owner to compel another to adhere to the line or which would compel the city to continue to keep the line in effect. The court stated that if the ordinance were to be construed as the initial step to street widening, then its legality would be doubtful in view of the fact that it did not provide for compensation to private property owners.

Pennsylvania has long been cited as the one state which rec-

ognizes the validity of police power street line establishment. An examination of the more recent Pennsylvania decisions might well be made to ascertain whether that reliance is still warranted and to illustrate trends in the law of the subject as interpreted by the courts. In 1928 the Supreme Court of that state decided the case of *In re Sansom Street in the City of Philadelphia*, 143 Atl. Rep. 134. The ordinance provided for the building or street line and prohibited buildings within the mapped line. In this particular case the line left a corner lot with an impossibly small buildable area, and for that reason the court was justified in holding that the property owner could compel the city to take his land and pay for it. The court, however, discussed previous Pennsylvania decisions so as to reconcile its decision in this case with those which had previously sustained police power building lines. In this process of interpreting the course of judicial opinion, there emerged, as the main question in each case, the determination as to the stage of planning or development at which the property owner may compel the community to take the land and pay him; that is, at what stage the police power building line must be converted into an eminent domain line by the process of taking the land and paying for it. The court did not reach any clear definition of this stage. It reaffirmed the proposition that the mere mapping and the mere prohibition of buildings within the lines of the mapped streets does not create the right to compensation, nor can the property owner, merely by submitting building plans, force the community to then and there take the land and pay for it. The court, however, interpreted the Philadelphia parkway case, namely, *Philadelphia Parkway*, 250 Pa. 257, as holding that where the community definitely commits itself to a highway by building some of it, at that stage the owner of property included in the planned highway may precipitate and assert his right to compensation. The same idea was expressed also to the effect that, where the building stage is reached, that is, where land reaches a stage appropriate for development, then the property owner may precipitate compensation. These tests are no doubt difficult of application; but, in general

the principle emerges more or less clearly from these Pennsylvania judicial discussions that, as long as matters are in the field or stage of projecting future street lines on still undeveloped territory, the time for compensation has not arrived, but that as the developing and building stage approaches, the community must make up its mind and either take the land or abandon the line. This Pennsylvania conception may prove to represent a future trend in legislation. In line with this, some cities fix a definite time limit within which the city in effect guarantees to carry out the street widening or extension or abandon the building line, and there are indications of a trend toward the express tying together of a street widening program and the establishment of mapped street lines.

Turning now to the subject of trends in subdivision regulation, these are in the direction of increasing closeness and detail of regulation, increasing use of a master plan and planning methods, and increasing participation of planning commissions. This trend is illustrated by many statutes and local practices.

To run somewhat hurriedly through the kinds or modes of subdivision regulation which are becoming increasingly prevalent, conventional or typical, it is now quite the general practice to provide for a tentative approval of the plat as to layout, postponing the final approval until the requirements as to the installation of street improvements and utilities shall have been fulfilled. There is an increasing tendency to classify streets, as, for instance, main thoroughfares, secondary thoroughfares, minor streets and local service streets, and to specify minimum widths for each class, as, for instance, 90 feet for main thoroughfares, 66 feet for secondary thoroughfares and 50 feet for minor and 40 feet for local service streets. (St. Paul is obtaining 99 feet dedication for main thoroughfares and several other cities are aiming at widths around or over 100 feet.) The width specification for alleys runs from 16 to 20 feet or for easements, for wires and other utilities from 4 to 6 feet on either side of the line dividing the tiers of lots. Conformance to the general or master plan is usually required, as well as conformance to the street layout of neighboring tracts. There is as

yet little tendency in the planning commissions to plat areas or districts in more detail than that of main thoroughfares, but some cities, Kenosha, for instance, have platted many of their undeveloped areas in detail, the Pittsburgh Commission has tentatively platted all undeveloped areas, Chicago's regional commission has prepared typical subdivisions as a guide, and many commissions, as for instance Cincinnati, will give assistance in preparing the layout. Where the plat shows reserve strips needed for access to the street system, there is usually the requirement that such reserve strips be placed under complete control of the city. Minimum dimensions of lots are usually provided for, as for instance 4,000 square feet. Minimum block lengths are required and the trend is toward longer blocks, usually 1,200 feet and even more, with a ten-foot foot-way in the center of the block. Many regulations require that the building lines be indicated on the plat, in some cases specifying exact building line standards. This question of including building lines in plats as a compulsory feature of subdivision regulation is still in the controversial stage.

Increasingly communities are requiring the standard street improvements and the installation of water and drainage facilities as a condition of approval of the plat, or, in lieu of actual installations, some method of assurance of such installations, as, for instance, a bond or an assessment petition. There is a distinct and growing trend toward the refusal of building permits in unapproved subdivisions. Both legislation and practice in this direction are still too recent to have developed either authoritative legislative principles or authoritative judicial decisions; but the legality of prohibiting buildings in unapproved subdivisions will no doubt be established. Increasingly public water and sewer service is being refused in unapproved subdivisions, and this furnishes an effective sanction for the subdivision regulation and one whose legal validity is not open to any serious question.

As regards parks, playgrounds and recreational open spaces, very few communities as yet go beyond a recommendation or a suggestion that due consideration be given to the need of such open

spaces; and compulsory open spaces are rare so far as the letter of the regulations is concerned. Quite a number of cities have succeeded, in one way or another, in getting dedications or contributions of these open spaces.

As regards the geographical jurisdiction of the city or its planning commission, there are two contrary trends, a slight one towards increasing the extra-territorial jurisdiction from three miles to five or six miles or more and, on the other hand, a tendency toward decreasing this extra-municipal jurisdiction where a county or regional planning commission or other county or regional authority is on the ground with power to perform this function. There are indications of a transfer of control to county or regional commissions, as for instance in Minnesota.

Judicial decisions on subdivision regulation within the last year or so have been few but favorable. In addition to the Michigan case above cited, the Ohio case of *Credential Realty Company v. Youngstown*, 118 O. S. 204, may be mentioned. It expressly upheld the right of a planning commission to charge a fee for passing upon the plat, basing the fee upon the number of lots, and it upheld the full regulatory powers of the city planning commission in the belt or area lying outside the political boundaries of the city but within the statutory jurisdiction of the commission.

DISCUSSION

A. B. HORWITZ, Duluth, Minn.: I would like to raise a question for discussion rising out of Mr. Bettman's remarks on building line easements. When we take property for street widening, we assess benefits. It may be necessary because of the financial situation to defer actual widening for several years and yet it is desirable to make the ultimate widening less expensive by the establishment of a building line. Is it possible to show now the benefits from the imposition of this easement and can they be assessed?

MR. BETTMAN: Of course, my answer must depend upon your state law, and its interpretation by court decisions, but if you can prove the benefit from building lines, I don't see any constitu-

tional difficulty in assessing them. That is one way to do it. But if later the city should build a street, that part of its cost which is represented by acquiring building lines can probably be counted in calculating the assessment, because there is no constitutional difficulty against assessing costs that took place in the past, providing they are all part of the cost of the same improvement. That is the other way to do it, and I like it better.

I would suggest that the city establish something like a revolving fund out of which building line assessments should be paid. When the street is widened, the bond issue for that improvement will replenish the revolving fund, and the assessment for the improvement will take care of the bond issue to the extent which is constitutionally allowed. I would think that there would be more chance of sustaining this process than if you tried to assess building line easements as a separate public improvement.

WHERE CITY PLANNING AND HOUSING MEET

HAROLD S. BUTTENHEIM, Editor, *The American City Magazine*, New York City

Those Whom God Hath Joined Together let no Man put Asunder

That city planning and housing meet so constantly and embrace each other so intimately as to make holy matrimony their only proper status, is the theme of this paper. And that their meeting places are so numerous and of such public concern as to merit much greater attention than they have heretofore had from municipal and civic leaders, I hope to demonstrate.

At the outset of this discussion, two definitions are needed: The term *city planning* will be used as covering the selection and use of land for public purposes in urban areas and control by the public in such areas of the use of private land. *Housing* will be used in its obvious sense of structures designed or used for human habitation.

As thus defined, where do city planning and housing meet?

1. *They Meet in the Zoning Ordinance and the Building Code.*—Under the definitions just given, zoning may be regarded as a subdivision of city planning, and the building code as an important factor in good housing; or perhaps we might more accurately give to zoning ordinances and building codes the appointment as chief liaison officers between the city planning and housing forces.

The job of these liaison officers, of course, is to protect and control as effectively as may be, in the public interest, the proper use and development of private property. We need somehow to give them greater sanction than they now possess in many cities, and to warn our public officials and civic organizations against the too common American mistake of passing a law and assuming the job to be done. Careless building inspectors and complacent boards of adjustment are all too numerous in cities where law-making is regarded as more important than law-observance.

2. *City Planning and Housing Meet in the Street.*—And the street in its location and width is one of the most nearly permanent of human products. When Sam Walter Foss wrote “The Calf Path” he told, as you will remember, how:

“One day through the primeval wood
A calf walked home, as good calves should;
But made a trail all bent askew,
A crooked trail, as all calves do.

“And men two centuries and a half
Trode in the footsteps of that calf.”

And, anticipating the modern traffic surveys, he added:

“A hundred thousand men were led
By one calf near three centuries dead;
They followed still his crooked way
And lost a hundred years a day.”

If we can ever induce our public officials to give as much forethought to placing new streets properly on the map as they are now compelled to give to correcting previous mistakes in this matter of street location and width, we shall have done much for the cause of city planning and housing. The untrained imagination of the foraging calf or speculative subdivider and the traditional conformity of the municipal engineer who cooks up his street plans on a gridiron, have been the chief factors heretofore in the design of our city streets. Among the ill effects on housing of this state of affairs—against which painfully slow progress is being made by our more progressive city planners and municipal engineers—are:

(a) Needlessly high costs for land, because of wasteful street layout, involving greater installation of paving and utilities than scientific planning would justify.

(b) Failure so to orient the streets as to provide the maximum of direct sunlight to dwelling rooms.

(c) Back yards that are either too small or too deep for efficient use.

(d) More corner lots than needed, in residential districts, involving betterment assessments, street noises, traffic dangers and dust on two sides, where one front—or no front—on a motor highway would suffice.

3. *City Planning and Housing Meet in the Multi-Family Dwelling.*—In the new buildings now being erected in many of our larger cities, more families are being provided for in “apartment houses,” so-called, than in single-family homes. The good old term “tenement house” has gone into the discard, except in legal documents. But while the multi-family dwellings now being erected are in general more fit for human habitation than the worst of the old tenement houses, most of these new buildings occupy, as Henry Wright, John Taylor Boyd, Jr., and others have shown, a needlessly large percentage of their lot area.

Our ears are being constantly battered these days with the half-truth that mankind cannot be made virtuous by law. The extent to which *words* can be made virtuous by law, I do not know; but if we could enact legislation which would restrict the use of the term “apartment house” to buildings occupying not more than 50 per cent of their lot area, and compel the use of “tenement house” in the name and in all advertisements of dwellings of the more congested type, we should go far, I am sure, to cure our speculative builders of their appetite for super-congestion.

4. *City Planning and Housing Meet in the Onward March of Business and Industry.*—The “blighted district” is the outward and visible sign of this unwholesome contact. No one wants business and industry to remain static; but a great handicap to the orderly development of most communities is that too much space, rather than too little, is provided for purposes of manufacture and trade. We have the spectacle of our small town Main Streets spoiled for a mile in length as sites for pleasant homes by straggling and struggling retail stores. The zoner or realtor who provides soil for two such stores to grow where only one is needed, is far from being as great a public benefactor as he would be could he devise a method of restricting business property to the reasonable needs of the community without creating a form of land monopoly which would be to the community’s detriment.

As to factory sites, let us have them by all means—in communities that want them. But let us stop providing any *unrestricted*

districts in our zoning ordinances. If there is logic in excluding the so-called nuisance industries from other districts, why should we not exclude all housing from districts where nuisance industries are allowed? There is as yet altogether too much truth in the criticism which certain radicals make of some of our zoning ordinances—that they are devised with tender solicitude for upper economic groups of the community, but are far from providing adequate open spaces, sunlight, and freedom from noise and atmospheric pollution, in the districts where those of the “other half” live. If it be argued that congestion is necessary because of high land values, let it not be forgotten that one cause of high land values is this very fact that congestion is permitted—to the financial gain of a few and the detriment of the many.

5. *City Planning and Housing Meet—or should Meet—in the Clearance of Slum Areas.*—On this important phase of the subject under discussion I cannot do better than quote from an able article by one of our foremost authorities on housing, Dr. Edith Elmer Wood, which *The American City* is to have the privilege of publishing in an early issue.

Mrs. Wood lists four main causes of slums: (a) faulty layout—too narrow streets or too large blocks, inviting courts, alleys and rear tenements; (b) bad structural plans of the dwellings themselves; (c) disrepair; and (d) overcrowding and uncleanness. While placing on landlords and tenants, rather than on city planners, responsibility for (c) and (d), Mrs. Wood says:

“With the residuum, however (slum conditions produced by faulty layout or by faulty structural plans in respect to light and air), the city planner ought to concern himself very deeply, for he alone holds the key to the solution. It is strange that his imagination has been so little stirred by the opportunities offered. A slum section is a liability to a community from every point of view—physical, mental, moral, industrial, economic. It does not tend to rehabilitate itself through the ordinary workings of supply and demand. The people who live in slum sections cannot afford to pay a profitable rent on new houses. Therefore none are built for them.

"The writer's thesis is that the only cure for slums of classes (a) and (b) lies in municipal clearance schemes, and that these should form, not isolated activities of the health and housing departments, as is necessarily the case in Great Britain under existing town planning limitations, but an integral part of every city plan which deals with an already existing community. . . .

"Ideally, a large slum clearance scheme could be linked with a decentralization scheme, to their great mutual advantage. In practice, it has never, so far, been done. If the industries employing part of the residents in a slum section were moved to a satellite garden town offering good housing to the workers, many more would follow if they were being simultaneously dispossessed at home than if it were all pull and no push. Those remaining on the site should be better housed than would otherwise be possible, and surplus land could be sold for business or other purposes, reducing, if not wiping out, the cost of the improvement to the taxpayers. In addition to which, the transplanted families would be far better off than if they had remained.

"No instance of slum clearance with re-housing has yet occurred in the United States. Minor slum clearance may be said to have taken place where a small park or playground has been established as much for the sake of getting rid of bad houses and bad layouts as of obtaining the breathing space. Cases in point were Mulberry Bend Park in New York, Willow Tree Alley in Washington, Morton Street in Boston, and Hell's Half Acre in Philadelphia."

Mrs. Wood discusses slum clearance activities in European countries and certain proposals in Boston and New York, and quotes from the report presented in June, 1928, by the Sub-Committee on Housing (of which Lawrence Veiller was Chairman) of the vast Committee on Plan and Survey appointed by Mayor Walker, of New York. The excerpts quoted advocate the use of excess condemnation in large slum-clearance schemes, such projects to be undertaken by a special "authority" to be created for the purpose. Endorsing this proposal, Mrs. Wood adds:

"But let us take heed also of the half-century's experience in

slum clearance available for our study across the water. And let us recognize from the start that slum clearance will fail of attaining its principal objects—better health and better homes—if it does not provide new accommodations for those whom it displaces, and at rentals they are able to pay. This cannot be done on the basis of private enterprise for commercial profit, but in view of our much-heralded prosperity, it ought to be possible to do it without subsidy. If not, our people might still be wise to tax themselves for good housing instead of for hospitals and jails.”

6. *City Planning and Housing Meet in Laws and Practices Relating to Real Estate, Taxation, Assessment and Eminent Domain.*—The painter achieves success when his beautiful dream becomes a picture; but the city planner or architect achieves success only when his beautiful picture becomes a street or a park or a building. The manufacturer succeeds when he designs a worthwhile product and makes it and *sells* it. For some reason, however—or for many reasons—ability to transform city plans into a living reality lags far behind ability to conceive them. Discussing the economic phase of this subject before a 1927 meeting of the Snag Club, in New York, Dr. Charles A. Beard said:

“It will be conceded that the power of artists and engineers to conceive city plans and the capacity of technical experts, contractors, and laborers to carry them into execution is without discernible limits. Equally undeniable is the proposition that, considered from the standpoint of esthetics, economic efficiency, and physical comfort, our great cities must be assigned a low scale in the percentage of possibility. There is hardly a municipality of any size in the country that does not have filed in its libraries and its city hall innumerable dust-covered rolls of blueprints and projects, drawn by competent hands, indicating lines of constructive work which would add enormously to the productivity and comfort of its inhabitants. Apart from decorative work, such as boulevards making it easy for the Rotary boys to go from their offices to their country clubs, or civic plazas—that is, putting diamond crowns upon leprous brows—there has been very little achievement in the

field of city planning in the United States. Our capacity for execution, for realization, has lagged far behind our capacity to imagine and to project. Why is this so? Surely there is no more interesting problem in social economy than this—none worthier of the highest talent we can discover.”

We need, obviously, more efficient governmental machinery and community organization for carrying out our city plans. Fully as important, I believe, is the practical problem of acquiring the land and financing the improvement thereof or thereon. We can never reach absolute justice in so financing our public improvements that those who benefit from them will pay in exact proportion to benefits received. An approach by gradual steps to land value taxation, however, and a wider and more scientific use of the special assessment method of financing street, transit and park improvements, will go far towards effecting a righteous and productive union of city planning and housing.

One of the most heartening signs of the times is the advocacy by the National Association of Real Estate Boards of the principle of excess condemnation (or marginal eminent domain, as it might better be called). And now if the same Association will use its great influence in behalf of laws by which private property needed for slum clearance and model housing projects can be secured at a fair price, it will perform a public service of great importance.

7. City Planning and Housing Meet in Many Other Times and Places.—To describe them all in detail would greatly exceed the limits assigned to this paper. But to list some of them may suggest profitable subjects for the discussion which is to follow. These other times and places, some of which have had incidental mention in the foregoing paragraphs, include:

(a) When a conflagration rages which scientific city planning might have prevented.

(b) When the prevailing winds blow and prove that certain housing and factory districts ought to have been transposed.

(c) When ordinary traffic highways are laid out where parkways ought to have been planned.

- (d) In the selection of sites for future schools.
- (e) In the layout of mill villages and other industrial housing enterprises.
- (f) In the activities, good and bad, of real estate subdividers.
- (g) In the city's transit system.
- (h) In the new movement for architectural control.

8. *Finally, City Planning and Housing Meet in Their Social Objective.*—This social objective in the case of zoning has been admirably stated by Alfred Bettman, as being “always positive and constructive and not merely negative and preventive.” And I want to supplement my own earlier definitions by describing *intelligent city planning* as the application of imagination, skill and justice to the layout and public control of the development of urban areas; and *intelligent housing* as the application of these same factors to the design and building of structures fit for human habitation. Is it too much to hope that, joined in holy wedlock, these great forces for human welfare may give birth to new and vigorous movements for making life more livable in American cities? May we not anticipate, for example, a friendly rivalry among the wealthy and public-spirited citizens of each of the forty-eight states in the building of the best-planned town for the motor age, and similar rivalry in all large cities in the development of low-cost garden homes for wage earners? The results would be a stimulus to city planning and housing progress whose benefits in human welfare and happiness would last as long as the world shall endure.

Those Whom God Hath Joined Together let no Man put Asunder.

MR. HENDRIKSEN: Mr. Buttenheim's remarks about the too common American mistake of passing a law and assuming the job to be done is also applicable to most European countries. The planning and housing reformers must do more than present ideas and pass laws. They must create a public opinion.

When we try to persuade municipal leaders to look forward we get the answer that nobody can look ahead more than two decades.

Whether this is so or not, we are really forced to plan much further ahead than that. We build our houses in Europe to last from 150 to 200 years, and although the life of the house is less in America, it is certainly long enough to justify the planning of other parts of the town.

We must make longer and deeper blocks. In this motor age we must plan our roads to counteract the ribbon development which is even more a tendency of late years in Europe than it is here. I believe it to be the most costly, the most dangerous, from the point of view of traffic, the most unhygienic, the most unsocial development that can be made. In the region of Copenhagen we have found that 15% to 25% too much running road length has been laid out in the last two decades. This will result in an everlasting burden to the municipalities. One is stirred to think of what might have been saved from this enormously superfluous road development for parks and playgrounds at a much smaller cost. Mr. Buttenheim is for more open space around tenement houses. In Denmark for seventy years the building law has required 50% of the lot to be unbuilt upon.

As regards zoning restrictions, we all know how much it hurts our conservative idea of land ownership, but we have pure food legislation and we all consider it a blessing, why not have pure land legislation, stipulating by zoning regulation what the land is most appropriate for? It is even more necessary to protect the public against exploiters of land. We should never tire of repeating that land and houses are not common wares such as hardware and shoe cream but commodities of much more complexity.

As to slums, I am glad to say that they have been practically wiped out in Denmark during the last thirty years. We have made that approach by gradual steps to land value taxation which Mr. Buttenheim looked forward to in his paper. I must say, however, that my own feeling of the administration of the law is that we have not been able to stop either the pancake or the ribbon development of our cities. We must have more planning and more zoning and we must bring about a freer use of the law which allows municipal authorities to exempt certain areas from taxes when those areas are marked in a plan as reservations for the public benefit.

I cannot conclude without expressing my hearty appreciation for this opportunity to speak before an organization which is foremost in the world for its promotion of knowledge concerning that most difficult phase of applied art or science, city and regional planning.

MR. BASSETT: First I want to comment on a statement in Mr. Buttenheim's paper* to the effect that the zoning regulations quite generally are in the interests of people of considerable means. I know that Mr. Buttenheim does not stand for the statement and will agree with me that it is entirely wrong. Since zoning went into effect in Greater New York there has been an unprecedented increase in the number of small homes, some of them costing as little as \$4,000. The builders of these homes and the owners of them have been influenced by the protection that they receive under the New York zoning ordinances. I am confident that twenty people of moderate means have been protected by the New York zoning ordinances for every one person that is well to do who has been protected by the zoning.

Regarding Mr. Veiller's paper, he knows perfectly well that battling for the ideal is fearfully hard. I know of nine terrific lawsuits that are now going on in the metropolitan area of New York where light and air are the main questions involved. These are all questions of constitutionality. The petitioners are apartment house builders and in almost every case they are proposing to put apartments in or on the edge of one family house districts. You might almost say that the municipalities are fighting for light and air with the chances all against them.

* To further clarify his point of view, Mr. Buttenheim submitted for the Proceedings, the following comment:

"No one can question the community values of zoning, but I am certain that these values might be made much greater than they now are in most of our zoning ordinances. It is a fact, as Mr. Bassett points out, that 'since zoning went into effect in greater New York there has been an increase in the establishment of small homes in the sunlight in Kings and Queens such as was never seen before in that city,' but there has also been a simultaneous increase, such as was never before seen, in the building of so-called apartment houses on the fields of the Bronx, which is rapidly making that naturally charming region one of the ugliest and most congested places of human habitation in the world.

"If our zoning ordinances are to continue to use solicitude—as they should—for the æsthetic susceptibilities of the aristocrat who would look with displeasure on the two-family cottage next to his \$50,000 mansion, can not our zoning ordinances show greater solicitude than heretofore for parents compelled to live in tenement houses who desire for their children adequate sunlight and air, and places in which to play other than the heavily traveled streets on which their so-called homes face?

"The Regional Plan of New York and Its Environs has shown that there is no want of land to enable twenty million people—more than twice the present number—to live in spacious surroundings within a radius of 25 miles of Manhattan. If this is true of the metropolitan region of New York, what excuse is there for perpetuating conditions of congestion such as are permitted to grow up under our zoning ordinances in certain parts of almost every city?

"Our zoning laws and court decisions have shattered the old tradition that private covenants were the only protection possible for single-family districts. Can we not now take another big step forward by shattering the tradition that every city must have certain districts where speculative buildings may compel human beings to live under inhuman conditions?"

LIGHT

LAWRENCE VEILLER, Director, National Housing Association,
New York City

Bold indeed would be the man who ventured to discuss in all its aspects so great a thing as Light. It underlies our entire existence. Without it there would be neither civilization nor life. It is not without significance that "in the beginning God said 'Let there be Light.'" For Light is the beginning of all things.

It so underlies our existence that it is impossible to think in any other terms. We cannot conceive a world without it.

In the last analysis, the Sun is the basis of every religion that the world has ever known. It is Apollo, it is Buddha, it is Christ. One need not be a Parsee to worship the sun; for there is no race that has not indulged in Sun Worship. And why should it not be so? Why should we not express our adoration for the source of all life, all power, all joy, all existence? The sun is the basis of all religions, among all races—from the most ignorant savage in the wilds of the Antipodes to the most cultivated intellectual of Western Europe.

The sallies of religion in the devout East, even the philosophy of this mechanistic age of today, are all based upon this fundamental element. Light has become symbolic of everything in life that is desirable. All the language of poetry, the symbolism of human speech, embody it, exemplified in such expressions as "enlightment," as "the light of my eyes," and countless others that at once spring to the mind.

Most of ancient mythology and of modern religion are inextricably associated with it.

But time presses and I must not detain you with a further consideration of these aspects of the subject that we are considering, except only to say that those of us who were privileged a few years

ago to witness the total eclipse of the sun had an experience that we shall never forget. Mysterious, awe-inspiring, deeply religious as it was, one was conscious at the time of how terrible a world this world would be if the light of the sun were once withdrawn. I am sure that no person who went through that experience, though it lasted but a few moments, would wish to have it part of his daily existence. Life would indeed be horrible if the light of the sun were to be withdrawn.

LIGHT AND HEALTH

We pride ourselves today upon the marvels of modern medicine, upon the discoveries of a scientific age, but let us not forget that what we hail today as recent knowledge of the therapeutic value of sunlight was known to the Father of Medicine, Hippocrates, and to Æsculapius; nor is it without significance that Apollo was the god of healing as well as the god of sunlight. The Ancient Greeks—and many races before them—well knew the value of Light. It has been reserved for a mechanistic age like the present to throw away the health-giving beneficial rays of the sun. Only recently have we awakened to the folly of this action.

The present occasion is not one for a dissertation upon the laws of health, nor on the relation of sunlight to health, except as incidental to the discussion of the question which vitally concerns us as builders of cities—"How can we bring to those who dwell in cities a greater share of the sun's vital and health-giving qualities?"

Light is the supreme agent of life and death. It is essential to the cure and prevention of certain diseases. That horrible disease of rickets which unnecessarily destroys so large a number of the children of our great cities is a deficiency disease, a disease of darkness, due solely to lack of proper sunlight. Saleeby, in his remarkable book, "Sunlight and Health," says:

"The restoration of sunlight to its primary place in hygiene and medicine must mean the end of rickets, and thus the end of all those cases where rickety contraction and distortion of the female pelvis involves the gravest risks to motherhood and to the maintenance of the race."

Dr. Alfred F. Hess, whose remarkable studies in the so-called deficiency diseases has thrown a new light upon this particular disease, says:

"As a result of clinical experience in the care of young children I am more and more impressed with the fact that sunlight is necessary for their normal growth and health. It is just as important for the growing child as it is for the growing plant. Adequate diet will not compensate for lack of sunlight."

Among the effects that light has in the prevention and cure of disease, Saleeby points out that, as first enunciated by Finsen, light operates as an "incitement," arousing the power of resistance to disease. The part that direct sunlight plays in the prevention and cure of that dread disease, tuberculosis, is so well known that it requires no comment. How vital light is to the growing child Dr. Saleeby points out when he says:

"Who could have guessed a year or two ago that a few minutes' exposure to it daily will double the quantity of phosphorus in a baby's blood in a fortnight; or cure rickets rapidly, certainly and costlessly."

The value of the ultra-violet rays we are just beginning to really learn about. There are other aspects of its relation to health that should not, however, be overlooked. Whipple points out, in that remarkable paper of his in 1916 to the New York Commission on Building Districts and Restrictions, what hitherto has been overlooked by most students of this question, that sunlight causes slight movements of the air by reason of the differences in temperature in the sun and shade, causing the air thus to circulate gently and giving the kind of air movement which our latest knowledge of the science of ventilation indicates to be so essential to what we call good ventilation and the preservation of comfort and health.

And then the bactericidal effect of light is of tremendous consequence. According to Wadsworth of the New York State Health Department, the germs of tuberculosis, of diphtheria, of typhoid, of cholera, are *killed* in from 2 to 10 minutes' exposure

to the direct rays of the sun. In diffused sunlight tubercle bacilli are not killed in 6 days. He points out further that the time required to kill bacterial spores if exposed to direct sunlight varies from 2 to 8 hours and that it is well known that many of the bacteria retain their viability a long time in dark damp places. He adds that:

“The beneficial action of light and air in destroying the agents of infectious disease depends very largely upon direct sunlight and houses should be constructed so that the sitting and sleeping rooms should have direct sunlight in them.”

It would be possible to multiply these instances indefinitely but time does not permit. Enough has been stated to make evident the important relation that sunlight has to health, the important part that it must therefore play in the building of our cities. There is an old French saying that is very much to the point:

“Baths of water are good; baths of air are better; but baths of light are best.”

Notwithstanding the knowledge that we possess—and have possessed for many centuries—of the value of sunlight to human life, we go on and build our cities as if there were no knowledge whatever on the subject.

IS OUR CIVILIZATION A BENIGHTED ONE?

I have often wondered what the future archæologists who dig up the city of New York a thousand years or so from now will think about our forgotten civilization. How puzzled they will be. One can hear them trying to reach conclusions as to the kind of people and the kind of life that was led in this ancient city, judging from the ruins that they find.

It would not be strange if they should say, from such evidence as came to them in this fashion, “Here was a race of men of a high degree of civilization and great skill in the mechanistic arts, and, apparently, great intelligence. They built buildings to unbelievable heights, buildings that seemed almost to reach the sky. We find in the ruins of their libraries a vast literature indicating that

these super-men had knowledge of all the past civilizations that had preceded them. There was evidently nothing alien to their life or experience. All of the civilized world was brought in contact with them by the latest and most marvelous mechanisms and instrumentalities. They apparently had full knowledge—so far as one can judge from the writings of the time—of the great danger to the health of the people living in that city of these gigantic buildings, and yet they permitted them to be built, apparently to unlimited heights. It must have been a strange race of men that could thus subordinate the welfare of the mass—especially in a community that prided itself upon the rule of the people and where all questions were decided by the determination of what the majority of people desired—that a small, limited number of men should have been permitted to impose their will upon this great majority, apparently only for the reason that they could make great personal profit for themselves out of these structures that held within them menace for the health of the whole community.”

May not the commentators of a thousand years hence say that it was a benighted civilization that permitted that kind of city building?

When we come to think of it, it is an extraordinary situation. Suppose the builders of our cities were, in similar fashion, to disregard the principles of structural safety, as they now disregard the principles of sanitary, or health, safety. The community would not tolerate it for an instant. No plea that a private individual would reap greater profit by building an unsafe building—a building that was likely to tumble down and injure property in its fall and perhaps kill a few people as it fell—would be tolerated, though there was a time when that situation did exist. And yet, the community continues to tolerate a situation that is infinitely worse. It permits buildings to be erected that it knows are injurious to its best interests, not merely from the point of view of health alone, but from a score of points of view, and permits this solely in order that a few private individuals may find profit thereby.

In an age that prides itself on being "scientific" the builders of our cities employ no more science than a child among his building blocks.

So far as light is concerned, the city planning work that has been done in this country up to the present time is a blend of ignorance, of stupidity, of timidity—at the best, of weak compromise with principles.

Most of the actual city planning work that is being done in this country today is to be found in zoning. It is through zoning we are determining the whole physical development of our civilization.

An examination of the zoning work done in recent years discloses—even in the best of it—a shameful, paltry, trifling with the subject.

I know of no zoning law in any one of the 754 zoned communities of these United States that makes adequate provision for light—or that even attempts to do so.

I know of no zoning consultant or city planner who has said to his client: "What you are proposing to do is wrong. The standards of open spaces and height limitations which you are proposing to adopt are grossly inadequate. They violate every principle of health, of sound city planning and of wise city development." If any city planner has thus raised his voice, it has been a still small voice—very still and very small—and not a clarion trumpet call summoning the community to stand with him.

I know that one reason for this is that the zoning consultant and city planner have been ignorant. They have not known what should be the standards for open spaces and for height limitation. They have failed to inform themselves, to keep up with the times.

There may have been more excuse for this years ago when the city planning movement was feeling its way, but there is no longer such excuse. The city planning movement has come of age.

HOW OUR KNOWLEDGE HAS GROWN

The first attempt in this country to determine the size of open spaces around buildings on a scientific basis, viz., in relation to the

height of the abutting walls that shut out or diminish the light that would otherwise enter the windows of the building, was over 60 years ago, in 1867, in New York, in the first Tenement House Law enacted in the United States.

It is true that this law was singularly defective. It applied only to a single situation and regulated only the space between front and rear buildings where there were two buildings on the same lot. This space was required to be 10 feet in the case of 1-story buildings, 15 feet for 2-story buildings, 20 feet for 3-story buildings and 25 feet for buildings higher than that. It is thus seen that there was here a recognition of a sound principle—viz., that the size of the open space was dependent upon the height of the walls that adjoined it, and should increase in proportion as such height increased.

In retrospect, it seems rather “quaint” that the same principle should not have been applied to the front of the building and its relation to street width; or to the rear wall of the building and its relation to the rear yard—but it wasn’t. Not until 20 years later—in 1885—do we find any attempt to regulate the height of buildings in relation to the width of streets. An Act of the New York legislature in that year (Chapter 454, Laws of 1885) provided that the height of future dwellings for more than one family should be regulated in proportion to the width of the street, not to exceed 70 feet on streets of 60 feet or less, and not more than 80 feet on streets of greater width. That law, unchanged, stayed on the statute books for 12 years. If it had only remained until now, what a different city New York would be today!

Not, however, until the enactment of the Tenement House Law of 1901 was there a recognition of the broad principle, as such, that—

“the size of all open spaces left for the purpose of providing light and ventilation shall in every case be regulated by the height of the building.”

After 10 years’ successful operation of the New York Tenement House Law and the demonstration that this principle was sound,

other cities of the country were urged to adopt it for all classes of residence buildings—in elaborated form and with higher standards—as set forth in the Veiller Model Tenement House Law (1911) and 3 years later in the Veiller Model Housing Law.

In New York City, in 1913, in the Report of the Heights of Buildings Commission we recommended the adoption of this method of regulating open spaces in relation to height of adjoining walls for all classes of buildings erected in that city in future. While following this principle, the method proposed was, I regret to say, not very scientifically worked out.

It was carried out 3 years later in the first comprehensive zoning ordinance enacted in this country—the New York Zoning Resolution of 1916.

Those first efforts to establish a principle that should govern the supply of light to the dwellers in our cities—for which we confess we had a large degree of responsibility—crude as they may seem today to the present generation of “younger statesmen,” were sound in principle. They were not rule of thumb methods. They were pragmatic attempts to establish a law of physics. They were in no essential respects different from the methods applied today. Instead, however, of basing one’s conclusions on astronomical or mathematical calculations made in an office, the simpler and more direct method was employed of observing the amount of light and shadow in existing buildings of various heights and with various sized open spaces. Though we did not mention such terms as “azimuth,” “hyperbolic quadri-laterals,” “sines” or “cosines,” “Ångström units” or “millimicrons,” we were just as scientific in fact as if we had employed all of the jargon of the present-day scientist.

The first important discussion in this country of the principles that should control the planning of buildings with respect to sunlight is to be found in a book published in 1912 entitled “Orientation of Buildings or Planning for Sunlight,” written by William Atkinson, a Boston architect, whose practice had brought him into rather close contact with the problems involved in the cure and prevention of tuberculosis.

From his studies made in an attempt to secure a maximum of sunlight in the planning of hospitals, he was led to take up the whole question of planning all buildings for sunlight and developed in interesting fashion a technique of determining the amount of light and shadow as a result of experimentation with a series of "sun-boxes" which he built for that purpose. The major part of his book is taken up with what may be said to be the mechanism of the subject.

One chapter of the book, however, is devoted to a discussion of streets and the direction in which they should run and the relation of buildings to them. He reached the conclusion that cities should not be planned with east and west streets, because of the fact that in the latitude of Boston "the surface of such streets receives no sunlight at all during 6 months of the year and the buildings on the south side of the street are in perpetual shadow during the same period."

SWAN'S EPOCH-MAKING STUDIES

In 1916 the first attempt in this country to determine scientific standards of light in relation to buildings on a mathematical and astronomical basis was made by Herbert S. Swan and George W. Tuttle in a series of studies made for the New York Commission on Building Districts and Restrictions, the successor of the Heights of Buildings Commission. I won't say this was published—but it was included in a printed Report of that body made public in June, 1916. It might be more accurate to say that it was "embalmed" in it.

A year later, in two articles in "The American City Magazine" (September–October, 1917) entitled "Planning Sunlight Cities," Mr. Swan set forth in popular terms the results of these important studies.

To my mind they represent the most distinctive contribution to the *science* of city planning that has heretofore been made in this country.

A few months later he and Mr. Tuttle presented the same con-

clusions in more technical fashion in two papers in the Architectural Forum (June and November, 1918).

That the purpose these studies had in view was a practical one is evidenced by the questions which the authors raise. They ask:

"To what height may buildings be erected on either side of a street and yet provide sufficient sunshine for the apartments and work rooms on the ground floor? How far down on a street façade does the sun shine and how long does it shine there? How small may courts and yards be made without shading the lower stories? What proportion should the length of a court bear to its width? What ratio should its width bear to its height? What is the relative sunshine value of a window fronting on a yard as compared with one fronting on a street? On an inner court? On an outer court? On a side yard? What is the effect of obstructing buildings? How are these factors affected by the orientation of the building? By its latitude? To what depth will sunshine penetrate into a room? What is the relative value of a large window as compared with a small one? What proportion of the sunshine entering a window is shut out from the room by walls of different thicknesses?"

and further

"To what extent will the daylight illumination in a given room be reduced by raising the height of the opposite building one story? How much will it be diminished if the space between the two buildings is made one foot narrower? If the length of the opposite buildings were doubled? What has the shape of a court to do with its lighting efficiency? Which is the better court, the square court or the oblong court? How does an outer court compare with an inner court? With a side yard? What is the effect of a recess? How much light does a forty-inch cornice cut off from the lower stories as compared with a ten-inch cornice? What is the superiority of a large window over a small one? And what has the position of a window to do with the admission and maximum utilization of light within a room?"

They *may* have answered these questions, but if so, I have still to discover it. I must frankly confess that I knew more mathematics 40 years ago than I do today. "The fault, dear Brutus, is not in our stars, but in ourselves."

Unfortunately, their studies are so enveloped in a maze of mathematical formulæ that to the ordinary person they are of no more use than the lost Vedas.

It may be asked what was the nature of the contribution to our knowledge of the subject that Swan and Tuttle made that justifies the characterization given it by us as: "the most distinctive contribution to the *science* of city planning heretofore made in this country"? In the 1916 Report they pointed out:

IN THE VALLEY OF THE SHADOW

"That certain tall buildings cast shadows on surrounding property, from $\frac{1}{3}$ to $\frac{1}{6}$ of a mile in length; that in the case of one building—the Equitable Building in New York City—this shadow at noon at the Winter Solstice, December 21st, was about $\frac{1}{3}$ of a mile in length and completely enveloped an area of 7.59 acres; that the shadow from this building cut off all sunshine from the Broadway façade of a neighboring building, the United States Realty Building, 21 stories high; that other buildings, the Title Insurance Company Building, 14 stories high and the Washington Life Insurance Building 19 stories high, though in the next block, were completely shaded by the Equitable Building; that the south side of the Singer Tower across Broadway was shaded to a height of 27 stories; and the nearest part of the City Investing Company building, 400 feet away, was in shadow for 24 of its 26 stories; and that for almost $\frac{1}{3}$ of a mile this giant skyscraper casts its shadow."

They pointed out that all windows receiving sunlight do not obtain the same amount, that the thickness of the wall in which the window is located plays a very important part in the amount of sunlight that penetrates that window.

It was further pointed out that a north and south street at New York developed with buildings on only one side of the street, receives at least 4 hours and 35 minutes of sunshine at the curb level on all parts of its surface on December 21st. If buildings are erected on both sides to a uniform height of one-half the street width, the entire surface of the street at the curb level receives but 2 hours and 36 minutes of sunshine. If the buildings are increased in height to one times the street width, the pavement receives

only 1 hour and 10 minutes, sunshine. In the case of buildings 2 times the street width the sunshine period is 1 hour; $2\frac{1}{2}$ times, 47 minutes; 3 times, 41 minutes; 4 times, 34 minutes; 5 times, 30 minutes; and 6 times, 27 minutes.

They also point out that "The *volume* of sunshine received in rooms is of just as much importance as the sunshine period."

With regard to penetration of light through windows, they said:

"Barring obstructions, it is the size of a window with reference to the thickness of the wall in which it is set that determines the amount of daylight admitted into a room. A small window in a thick wall admits proportionately less daylight than a large window in a thick wall.

"In an unobstructed window $2\frac{1}{2}$ feet wide and 6 feet high set in a wall 1 foot thick the flux of daylight admitted is equal to only 76.1% of that through a window set in a wall $\frac{1}{2}$ foot thick."

And finally, they pointed out that there is tremendous importance in the color of walls in the illumination of buildings, and that light-colored walls greatly increase the total illumination through reflected light.

All of these facts—of momentous consequence to the art and science of city planning—you will find carefully "embalmed" in the Report of the Commission on Building Districts and Restrictions of New York City, published in 1916.

A year later, in those two popular articles in "The American City" entitled "Planning Sunlight Cities," they presented the fundamental facts with regard to light in even more striking terms, so that the ordinary man in the street might read and understand.

It is thus seen that thirteen years ago there were presented for the information and knowledge of the builders of cities facts that vitally affect the whole question of city building.

In 1920 our fellow town planner in that great country to the north of us, H. L. Seymour, delved into the subject and presented a series of "Nomograms." By these, "for any latitude, for any day, and for any time of the day, the altitude of the sun and the

direction of shadow cast by an obstructing object can be obtained." We have no doubt that this device will enable mathematicians to make their calculations more easily and more accurately.

Prior to this time, Arthur A. Shurtleff, the Boston city planner, had invented a somewhat similar mechanism which he delightfully termed "The Prodigal Sun."

THE N. Y. REGIONAL PLAN REPORT

The most recent study of this subject in the United States is that made by Wayne D. Heydecker, in association with Ernest Goodrich, for the Regional Plan of New York, and soon to be published under the title "Sunlight and Daylight for Urban Areas," which we have been permitted to see in advance of its publication.

This important study, which seeks to assemble the heretofore existing knowledge on this subject and to review the research heretofore made in this field, considers the subject under 8 main headings, as follows:

The Relation between Sunlight and Air and Health, General Bactericidal and Therapeutic Effect of Sunlight, The Influence of Sunlight on Ventilation as a Factor in Health, How Sunlight Can Be Secured, Planning of Land to Obtain an Adequate Sunlight Standard, Skylight as a Partial Substitute for or Supplement to Sunlight, An Application of Principles Here Developed to a Unit of Land in the New York Region, and Conclusions Reached.

The Report gathers together the views of leading medical men and other sanitary experts on the relations of sunlight and health, and presents the known facts on this aspect of the question with clarity and scientific fairness. To a large extent it traverses the same ground covered by Swan and Tuttle in 1916 in their pioneer work in this field, and seems to have been written with complete lack of knowledge of the important work that has been done in England along these lines. Notwithstanding the science that has been built up in England with regard to this question through a long period of years in connection with the administration of the

Law of Ancient Lights the Report has nothing to say on that aspect of the subject.

What, it may be asked, is added by this new Report to our knowledge of the subject of light in relation to buildings? The Report discusses very thoroughly the new knowledge that has come to us in the past five years with regard to the ultra-violet rays and their significance and importance in the building of our future cities. It very properly differentiates between sunlight and skylight. It considers the difficult question of penetration of sunlight, and differentiates the importance of the intensity of the light and the period of its duration. It discusses and exemplifies and presents in tabular form the amount of light that will penetrate through walls of a certain thickness, by means of windows of different sizes in buildings with different orientations, and at different periods of the year and at different hours of the day, and discusses the means by which these results are arrived at.

COMPROMISING WITH PRINCIPLES

The most questionable part of the Report is its willingness to adopt as "equivalent" for direct sunshine a greater amount of light from the sky. Notwithstanding the fact that the Report clearly points out that direct *sunshine* is the thing that is of value, a regrettable compromise with principles is made in an attempt to be "practical," and to work out a scheme that will allow the investigators to make recommendations which will have practical application to existing lots in New York, and to demonstrate that by so planning buildings and placing them differently upon those lots, results greatly more satisfactory than are obtained at present can be obtained.

We can but regret that such a view is presented. It is in violent conflict with the earlier parts of the Report and with the sound principles there advanced that direct sunshine is essential for healthy living in all cities.

After quoting leading authorities to the effect that the most active stimulant known in the resistance of disease is *sunshine*,

and that we should see that our children have an adequate amount of sunshine, just as we see that they have adequate food, and that we ourselves should have a sufficient amount of the sun's rays, it is disconcerting to say the least, to find the investigators adopting the low standards of $\frac{1}{2}$ hour's sunshine in each room, *or its equivalent*.

It is interesting and significant that in England, notwithstanding their different climate, and the greater difficulty of having much sunshine as compared with New York and its climate, we find the investigators in this field in that country dismissing anything less than an hour a day's *sunshine* in each room, as something negligible and not worth consideration. We can but regret that in a Report of this kind so low a standard should have been adopted.

CONCLUSIONS REACHED

The conclusions reached as a result of 5 years' study of the subject are in part as follows:

"In general, this study shows that there is a vital relation between sunshine and health; that in the interest of public health and public welfare the minimum reasonable amount of sunshine which should be available for every room in dwelling houses is one-half hour of noon intensity, or its equivalent, on the shortest day of the year; that in order to secure this minimum requirement, north and south streets should not deviate more than 10 degrees from the true north and south lines; and a better arrangement of lots and of houses on the land should be employed, suggestions for such arrangements being described in detail; that in cases where some rooms cannot secure the sunlight standard, daylight can be used as a substitute under certain conditions; and that these conditions include the enlargement of window areas by at least 50%, and the spacing of buildings at such distances that for every window which does not receive direct sunlight, at least 1% of the half dome of the sky shall be visible from any part of the room. This means, among other things, that skyshine can be substituted for sunshine in rooms with windows facing in a general northerly direction only by increasing the amount of land required, and that the amount of land required will thus be increased beyond the typical 40 by 100 foot plot in residence districts if dwellings or other interfering buildings are made more than 25 feet high."

An attempt has been made in this study to indicate methods of placing buildings on land and of subdivision of property that will bring about the results desired, in accordance with the standards established in the Report. As an understanding and appraisal of the value of that part of the study is dependent upon the diagrams that accompany the final Report and which are not available in the proof in our possession, it is impossible for us to comment upon the soundness of this portion of the Report.

In an article published in *City Planning* for January, 1929, entitled "What Zoning Ought to Be," Mr. Heydecker presents a series of standards of open spaces between and around buildings—presumably embodying there the recommendations of the Regional Plan Report.

Mr. Heydecker has developed what he terms 3 basic types or rules that, in his judgment, should control the situation. These he terms "open" construction suitable for residences; "close" construction suitable for apartment houses, or row or group buildings; and "maximum" for business districts.

For "open" construction for residences, Mr. Heydecker lays down the rule that the size of the open space in all cases, at front, at sides and at rear, should be equal to twice the height of the building. Or, stating it differently, that the height of the building should not exceed one-half the amount of the open space abutting it. To many this will seem a counsel of perfection. As a general rule, however, it is fundamentally sound. Mr. Heydecker points out that there will be minor variations to it. Assuming buildings 25 feet square and 25 feet high in the latitude of New York, he states that the necessary distance to be kept open between such buildings to secure adequate light varies from 31 feet to 44.5 feet. This applies to buildings that are detached, with light and air on all four sides.

When it comes to what he calls "close" construction for denser occupancy—which he thinks may be permitted for apartment houses and row or group houses which receive their light only on two sides of the building—he points out that such buildings must obviously

run in a general north and south direction and states that they should not vary more than 10 degrees from true north and must still observe the rule of space in each direction, equal to twice the height.

When it comes to his third group, which he thinks may be suitable for business buildings, on streets which run north and south he would permit such buildings to be built to a height equal to the street width, thus conforming to the English practice of the so-called 45 degree angle of light. He says, however, that this is not a standard, but a compromise and adds that it does, however, guarantee to all windows above the middle height of the building, the same amount of sunlight and skylight that is obtained in the "close" construction districts. He states, however, that this should be the maximum density.

The presentation in *City Planning* is in popular terms that he who runs may read, but the Report itself, like the earlier studies of Swan and Tuttle, is so involved in a mass of mathematical and astronomical formulæ that it needs to be interpreted in popular terms to be of full value to the average city planner, architect and builder of cities.

WHAT THIS ALL MEANS TO CITY PLANNERS

We characterized Swan and Tuttle's Report as "the most important contribution to the *science* of city planning heretofore made in this country." What have we as city planners to learn from it, and which should affect our practice as city planners in building future cities?

We have learned, in the first place, that everything is different in different latitudes, that the amount of light that will be received on the outside walls of a building, as well as inside of it, is quite different in Winnipeg from what it is in Palm Beach; that the amount of light that will be received in New York is quite different from the amount of light that will be received in London or Paris.

We have learned that the orientation of buildings is of vital consequence. That we knew before, but we never knew how vital

it was. We have learned that at New York row-buildings or attached buildings should be built on streets running north and south and that detached buildings may be built on streets running east and west; that whole cities in such latitudes should be laid out, if possible, with most of the streets running north and south, or a little off that.

We have learned that there is all the difference in the world between sunlight or *sunshine* and skylight, or light reflected from the heavens and the clouds. And we have learned that the direct light of the sun, the *sunshine*, is of vital consequence to the health of the race, and that no amount of reflected light from the sky can ever compensate for the absence of it.

We have learned that there is a direct relation between the height of buildings that obstruct light from neighboring buildings and the size of open space that must be left around such buildings. We have learned of the harm done by the great valley of shadow that is cast by tall buildings in modern cities, and how that area of shadow spreads and casts its baneful effects sometimes for a distance as great as $\frac{1}{6}$ of a mile.

We have learned that the size of the window that is provided to admit light is of vital consequence; we have learned that not merely its size is of moment, but that the thickness of the wall in which it is located and the way it is inserted in that wall is of almost equal consequence; and we have also learned that its location in the wall, its distance from the top and bottom of the room is of great importance.

We have learned that not only is the volume of light that may penetrate to a room of great account but the period of the duration of that penetration is of even greater account.

We have learned that the amount of light received on the outside wall of a building varies not only in different latitudes, but at different hours of the day and at different times of the year, and with the direction of the street on which the building is located.

We have learned that the color of the walls of buildings plays an important part in increasing the amount of reflected light; that

through light-colored walls more light can be made available inside of buildings.

A PILLAR OF CLOUD BY DAY

There are other aspects of this question that have not been touched upon, due solely to lack of time. One of these is the effect that the Smoke Nuisance has in diminishing the amount of available sunlight. In all of the discussions that have been had of the amount of light that is desirable, it has been assumed that the full amount of light that comes from the sun will reach the building. There has been no thought that we would deliberately spread a screen of cloud to prevent a large part of that light from reaching us; and yet that is what we are doing in most of our cities, not only in America but throughout England. We have been diminishing the supply of light beneficent Nature gives us by interposing this screen of dark smoke, this pillar of cloud, that is so detrimental to health.

THE ULTRA-VIOLET RAYS

We have only made the most passing allusion to the ultra-violet rays. There is much yet to be learned with regard to these health-giving rays of the sun that are not visible to the ordinary eye. One thing we have learned about them is that ordinary window glass practically excludes all their beneficial effect and keeps their health-giving qualities from our children and from our families. A ray of light travels 93,000,000 miles to reach us, and when it comes we throw away its most valuable qualities.

We have learned that new kinds of glass have been perfected and are on the market and are being sold commercially at prices that are not prohibitive that will admit into our houses a large part of these beneficial health rays.

Another aspect of the question that we have not even alluded to is the part that Hexagonal Planning may play in bringing about a greater amount of light for our cities and in securing the desired orientation.

WHAT ABOUT ENGLAND?

It is a bad American practice to rely too largely upon our own experience and to forget that there is a vast civilization that has been going on for centuries on the other side of the ocean. It's a form of provincialism naturally encountered in comparatively new countries, but we are old enough to have outgrown it.

It is a little disconcerting, therefore, to find that practically every one in the United States who has hitherto considered this subject of light in its relation to buildings has proceeded as if there had been no experience in any other country but the United States of America. This, of course, is not the fact. There is a vast fund of experience in Europe, especially in England, from which many of our institutions and much of our framework of government have come to us.

Singularly, England is the one country that, on the whole, has achieved correct standards of light with regard to its buildings, especially its dwellings. Such conditions of lack of light as are found in New York's older tenement houses, for example, are unknown in England, and, apparently, have never been known in that country. Without any restriction of law to compel it, the custom of the country and the habits of its people have apparently dictated the form of building in which people shall live in that country, with its 40,000,000 inhabitants.

There are practically no problems of light and air in any part of England and Wales—at least as we know them in the United States, or as they know them in Paris or in Berlin and in many countries of Europe. This is due to the fact that from time immemorial no dwellings have been erected in England more than two rooms in depth.

In England there is a general acceptance of the principle that people have an inherent right to God's sunlight and that no man shall deprive another of that right.

THE LAW OF ANCIENT LIGHTS

That principle has generally found expression in the doctrine known as the Law of Ancient Lights. It can be traced back to the

reign of Richard Cœur de Lion, in the year 1189, from which dates the earliest building law known in that country—Fitz-Elwyne's Assize of Buildings. These inherent rights have been jealously guarded by free-born Britons through all the centuries, culminating in the enactment of the Prescription Act in 1832, in which the practice of centuries was embodied in statute law and brought into harmony with court decisions and existing practice; for a great body of law had been built up on this subject through all these years.

Those who condemn such laws as the Prescription Act and our modern American laws regulating the height of buildings as instances of legal interference with commercial progress, might well note that such laws are derived direct from the Roman Code.

An inscription found in Pompeii records that as early as 10 B. C. the City Council through Duumvirs with "judicial authority" paid 3,000 sesterces compensation to those whose light was affected by the erection of the city wall, built only to the height of the tiles.

Eight hundred years later, in the Byzantine Empire, when a poor widow complained to the Emperor that the new palace of his brother-in-law had illegally darkened her house, "so as to render it almost uninhabitable," the Emperor ordered redress, and finding that his order had been disobeyed, he ordered the demolition of the new building and the scourging of the builder in the public highway.

The English law of ancient lights is thus seen to be an ancient law of ancient *rights*, as well.

WHAT IS THE LAW OF ANCIENT LIGHTS?

In view of the fact that a whole body of jurisprudence has grown up in England in connection with the law of ancient lights, it is a little difficult to answer this question as briefly as one would wish.

One English barrister, writing on this subject recently, defines an ancient light as follows:

"An ancient light is a kind of negative easement, or right, which the owner or occupier of a building may acquire in respect to the

defined apertures therein used for the admission and enjoyment of daylight; having acquired which easement he may prevent the owner or occupier of an adjoining piece of land from building or placing upon that land anything to obstruct or obscure the daylight which enters laterally by the aforesaid apertures into his own building."

That may be quite understandable to the average lawyer; for, having been stated by a lawyer, it has necessarily been stated with a lawyer's precision. Putting it in popular terms, the law of ancient lights concerns itself primarily with the protection of a property right in light by one property owner against another property owner. It is not a means of protecting the public, except indirectly. Under the Prescription Act of 1832, it is provided that if a window in a building has uninterruptedly enjoyed the access of light for a period of 20 years, that right becomes permanent. Two remedies are open to the man whose property is adversely affected by the erection of a building on adjacent or neighboring property. He can sue for damages or he can seek an injunction preventing the erection of the building in question or compelling its being torn down to a point at which it will not interfere with his rights in light.

The usual practice in England has been to sue for damages. Most of the disputes have been settled on a basis of a money payment of compensation; but there have been cases, and recently, in which owners of new buildings erected to the detriment of the light of adjacent buildings have been compelled to tear them down.

A case in point is found in a decision of the Chancery Division before Mr. Justice Tomlin, handed down last year in the case of *Griffin versus Clisby*. In this case an injunction was sought to restrain a property owner from building on a street in Knightsbridge, London, on the ground that he was obstructing the light at the back of adjacent buildings. It was claimed that the front of the house was somewhat dark, being "overlooked" by other buildings and that the back part was light until the wall of a neighboring new building went up 5 times as high as the previous 6-foot wall—that is, to what we should consider the comparatively

low height of 30 feet, or about 3 stories. The builders of the new wall were notified that they were interfering with the ancient light, but notwithstanding this they went ahead with their building. In this case, the judge went to see the house. The defendant's wall was 28 feet high at a distance of 10 feet from the other building. The light of the two upper stories was not diminished, but the staircase light had become insufficient. The kitchen would now require artificial light. The defendant said that the court should merely order damages. His Lordship did not think so. The damage was of such a kind as to alter the character of the house.

Accordingly the judge found that a case of nuisance by obstruction of light had been made out and that the plaintiff was entitled to a mandatory order for the reduction of the offending building to such an extent that no nuisance would be occasioned. He consequently made a declaration to that effect and counsel were required to consult to see whether the parties could agree as to the extent of the pulling down. Failing that, the court itself would appoint a surveyor. This is by no means an isolated case.

As can be readily imagined, there has been great difficulty in establishing standards of what constitutes sufficient light and what constitutes an injury to an existing right of light.

Percy J. Waldram, the leading authority in England on this question, and perhaps the leading authority in the world on the subject of light in its relation to buildings, in a Paper read before the International Illumination Congress, September, 1928, entitled "Daylight and Public Health," describing our lack of control of building, says:

"Not only do we construct draught-tight windows and glaze them with glass opaque to the really useful therapeutic parts of the spectrum; but we still meekly submit to building laws which are wholly and obviously insufficient to secure properly lit interiors, or even to prevent the construction and use of interiors with practically no natural light at all."

He adds:

"Every time it is proposed to enforce stricter limits on the height and distance apart of buildings, vigorous objection is inevitable. It invariably succeeds because the reformers can never define what they desire. They have no standards of adequacy, nor will they ever have unless and until this International Commission can supply such standards."

Pending the findings of the recently appointed International Commission on this subject, Mr. Waldram urges the adoption of a simple, practical criterion, easily applied to any number of comparable cases, such as the "no-sky" line at table height, as having a positive advantage over any other more exact standard which can be applied only by tedious labor.

Whatever may be decided upon as the most accurate figure for the minimum standard of adequate light, Mr. Waldram says, "the real crux will be the minimum distance to which penetration into buildings should be secured by legislation" and urges that the following standards be adopted, pending the completer inquiry of the International Commission:

"(a) That positions from which no sky at all is visible at table height are inadequately lit for ordinary purposes such as continued clerical work and

"(b) That it is undesirable that rooms should be constructed or used for habitancy, or for clerical or other ordinary work over long periods, unless they have at least some sky visible from table height over some reasonable portion of their area."

The law as laid down by the courts on the question of what constitutes adequate light is thus expressed by Mr. Waldram:

"The fundamental basis of the standard of inadequacy which has been adopted in the English courts in connection with Ancient Light disputes for some years, is that light should be sufficient in moderately dull weather, such as a wet summer's day, when the sky may be assumed to be of a light even gray, equivalent to an illumination of 500 foot candles from a complete unobstructed hemisphere, whether the situation be Birmingham, Bognor or Biarritz."

We regret that there is not time for a discussion of the many interesting and intricate legal and technical questions that are involved in this subject. These must wait another occasion.

It is unquestionably largely due to the existence of this law of ancient lights and the recognized principle by all Englishmen that a man has an inalienable right to the light of the sun, that there are practically no skyscrapers in the English cities.

However, reliance on this law has not always proved sufficient. This was discovered about 50 years ago in London when, much to the surprise of the people of that city, in 1878 a hideous 13-story building, known as "Queen Anne's Mansions," was erected in Westminster, visible, it is stated, from Buckingham Palace, though across the park nearly a mile away, and standing up an eyesore in Queen Victoria's view. The discussion that was aroused by the erection of this ugly and unduly high building, known at the time as Hankey's Folly, was followed in 1890 by the erection of the Hyde Park Hotel, which brought further discussion of this question and led to the enactment in 1894 of a building by-law imposing an absolute limitation of height on buildings erected in future in London. The standard set at the time was a height limit of 80 feet, with 2 stories additional in the roof in the discretion of the local authorities. This is the law today.

WHAT ABOUT A LAW OF ANCIENT LIGHTS IN AMERICA?

We have often wondered whether we might not control the evil of high buildings in this country by a similar law of ancient lights. It is quite evident that we have thus far failed to control it adequately by our zoning regulations or by any statute that has heretofore been enacted. It may be that we may yet come to the adoption of this English system. It is something to consider carefully.

Whether our various States could enforce such a scheme under the common law raises a most interesting legal question. It has never been very carefully examined in this state so far as we can discover, and not to a very great extent in any other state, with

the exception of the state of Delaware. There it appears that the prevailing legal opinion inclines to the view that Delaware is one of the states in the United States that carried over from the old common law the English Law of Ancient Lights. At least, that is the view held by the Chancellor of the Court of Chancery of Delaware in an opinion handed down in 1924 in the case of *Bringhurst v. O'Donnell*, with regard to the erection of a building in the city of Wilmington. Citing an earlier case (*Clawson v. Primrose*, 4 Del. Ch. 643), the Chancellor held that the doctrine of ancient lights, as understood to prevail at common law prior to our separation from England, was transplanted to these shores, and, this being so, was, by virtue of the provisions of the Constitution of 1776, continued as the law of this state upon its organization as a "commonwealth."

It is always dangerous to prophesy, and particularly dangerous to make any forecast of, what may happen in the development of cities in America. It would be rash indeed to attempt to say what might happen in our rapidly changing civilization even in so short a period as the next 10 years. When we consider how rapidly the zoning movement has commended itself to the people of this country—how what many of us only a comparatively few years ago looked upon as something incapable of adoption, as something that the courts of the country would not sustain—it is not outside the range of possibilities that even so apparently novel a proposal as the adoption of a law of ancient lights might commend itself to the people of this country.

In any event we should like to see it tried. We believe it would do much to discourage the present chaos in city development that the great cities of the country face—perhaps more than any method that has heretofore been tried.

Failing to secure the enactment of a law of ancient lights in this country, there is much that can be done. In the first place we city planners—who are, or should be, the builders of our cities—can remove the reproach that now exists with regard to our scientific attainments, and can, at least, inform ourselves of the

existing knowledge that there is on this subject of light in its relation to buildings.

Probably before the whole tribe of city planners can reach that exalted state, it will be necessary for some brave soul to reduce to our common understanding the intricacies of the mathematical and astronomical formulæ of the Swan-Tuttle and Heydecker-Goodrich studies.

As a first step in bringing about that state of enlightenment among ourselves may I, without offense, suggest that it might be desirable for the City Planning Conference to discuss this subject in its future meetings, not merely in the broad and generalized fashion that has been necessitated by the limits of this much too long Paper, but intimately and in detail, with full consideration of the technical aspects of the subject as well as of its broad popular ones.

So far as I know, although Swan and Tuttle made public the results of their research 13 years ago, in all that time there has never been in the meetings of this group of broad-minded and intelligent men any discussion of these questions that so vitally affect their practice, and which concern the very foundations of the science and art to which they have devoted themselves.

It is not without significance that in the index to the 18 volumes of the Proceedings of the City Planning Conference neither the word "Light" nor "Sunlight" is to be found.

DISCUSSION

EDWARD T. HARTMAN, Boston, Mass: As to the paper by Mr. Buttenheim, I have no word of criticism. I ask only that there be more who think as he does.

It is a significant commentary on the actual situation that a sound proposal was in the fall of 1928 laid before a substantial group in one of our larger metropolitan areas and was accepted in a practical way by but one of the lot.

The initiators of this proposal invested about \$10,000 in options and surveys of the finest five hundred acres within reasonable distance of the center. The proposal was to do sound planning and

building, with the copartnership principle as developed in England as the main factor. The loan stock was offered 6 or 7 percent and it was to control till the tenant occupants became, by degrees, the controlling factor.

Among the people to whom the matter was presented were the head of the better homes movement in the area, the long-time head of the chief charitable society, a realtor who had introduced housing bills into the legislature, former members of various housing committees, and others. All these were in the millionaire class and all had been active participants in palliative charity. They all turned it down, primarily, it seemed, because of the absence of the speculative element.

The one man who was ready to back it was a philanthropist who was also a humanist and who has directed most of his activities into the constructive field.

Not having a copy of Mr. Veiller's paper when this was written, I will discuss one phase of ancient law, known as ancient lights, along with modern American practice.

The theory of ancient lights may be defined as allowing him to take who will and him to hold who can. It is not consistent either with American law or with sound common sense. The only workable or consistent theory is that each lot should properly light and ventilate the building or buildings upon it. This allows each owner to make a proper use of his land, and does not allow whoever builds first to appropriate for himself what in justice belongs to another.

When we consider light and ventilation in the construction of multiple dwellings, the chief point is to make each unit, each lot, each building, a self-sufficient unit, assuming that all surrounding units are developed in the same way.

The defect in our practice has been that we have thought of the lot as a unit surrounded by vacant areas.

This applies to our consideration of the needs of outside rooms. In the third volume residential district Chicago allows a 75% coverage of an interior lot and a 90% coverage of a corner lot, and a height of 132 feet on the street line and 198 feet in all. New York's height limits are, as Mr. McAneny said several years ago, for all practical purposes non-existent. Boston permits 80% coverage in the greatest height districts.

Philadelphia leads in the theft of light and air. This is in accordance with the general rule that a place is safer with no maximum coverage regulations than with meaningless and futile regulations

that tend to establish an impossible practice. Philadelphia has no zoning. The building code allows a 90% coverage of a lot with streets on two sides and 100% with streets on three sides. The sky is the limit for height.

On Rittenhouse Square a number of apartments have effectively established the principle of ancient lights by taking the light and air. In some cases they have protected themselves and done justice to adjoining property—in some small measure— by purchasing what could not at all be used. This leaves out of account surrounding buildings overshadowed by these 16 to 27 story buildings.

Permit No. 4462, June, 1928, is for a building 260 feet high, 22 stories, on a lot 110' x 150'. This 22 story building has streets on three sides. It covers over 80% of the lot area. The fourth side of the building is on the lot line for 49 feet, has a court opening, 34.5' wide and for 56.5' it is 8.5' from the lot line. It owns no light easement. If the adjoining property is ever developed in the same way the new building will entirely block some of the windows of the present building and windows at the bottom of a court 260' deep will light on a space 34.5' x 135'.

Of course, if we protect the first arrival through a scheme of ethics that says that if a man wants to build to 260' on the lot line the abutting owner must forever carry his lot and pay the taxes for the benefit of the early developer, some light and air are available for the outside rooms, and the rooms on what would thus remain an outer court would be much better off.

Suppose the abutting owner does not care to agree to this? Because of the absence of any proper regulation it remains a case of the first takes and keeps, because the second can't make a similar use of his lot without suicidal action. He has to submit to murder to avoid suicide.

Here are a few more examples from Philadelphia: Permit 6508, 1922, lot 50' x 100' on 3 streets, height 16 stories, 185'8". Practically complete coverage. Windows opening on lot line and on an 8' court. No light easement.

Permit 12429, 1924, lot 62' x 95' on three streets, height 18 stories, 205'2". Practically complete coverage. Windows opening on lot line and on 8' court. No light easement.

Permit 4122, 1913, lot 70' x 100' on three streets, height 17 stories, 220', windows on lot line and 8' court, but the adjoining property is owned, so there is a light easement.

Permit 9925, 1924, lot 127' by 136' on three streets, height 21

stories, 233'3", windows on lot line and 10' court, no light easement.

In spite of this and in spite of a half century of study and experiment we find small isolated cities, working under "expert" guidance, where a 70 and 80% coverage is allowed. In one such place it is, for say a lot 25' x 100', 70% coverage for an interior lot and 86% for a corner lot.

As I have indicated, the only way to regulate apartment construction is to provide that each lot shall care for the building on it. Consistently applied, all lots may be so covered and there is a proper development of this type of housing and a consistent use of the land.

Studies have been made and sound conclusions have been reached that for 4 or 5 story apartments a 50% coverage is as great as may be allowed for results that are at all satisfactory. The Bayonne Housing Corporation, not a group of theorists—the Standard Oil Co. and the American Radiator Co. and such groups being involved—worked on the theory of a 50% coverage, but in its first development found it could not go over 36% with a combination of 4 and 5 story buildings. Its first development covered 36%.

The Rosenwald Fund homes for negroes in Chicago cover less than 40% of the six acre plot on which the single building stands, and it is but five stories.

The Paul Laurence Dunbar Apartments in New York cover 50% of the site.

Mr. Henry Wright has shown that you lose more than you gain if you cover more than about 50% with walk-up apartments. What then must we conclude in regard to the sky-scrapers of Philadelphia and the coverage allowed in many recent zoning ordinances?

Why is it that we sometimes make fairly reasonable provision for lighting and ventilating outside rooms but have no consistency whatever when it comes to rooms on courts? There are probably but two or three ordinances in existence that resemble consistency. One of them is in Medford, Massachusetts.

The Medford provisions allow a 50% coverage, 4 stories high. If rooms open on courts the following minimum sizes are required:

For an outer court, six feet wide for the first story and four feet for each additional story and the court may not be longer than three times its width.

For an inner court, ten feet in width for the first story and five feet for each additional story and the length shall be not less than twice the width. Such inner courts shall have an air intake at the bottom.

Even this is not "model" housing! Is there any excuse for doing worse in America the beautiful, the great, the prosperous, the intelligent? There is no excuse except indifference and cold-blooded commercialism.

Now where do our ancient lights come in? Buildings such as those in Philadelphia practically establish the effect of ancient lights, because adjoining property may not be used in the same way without grave injury to itself, as well as to that previously developed. The effect is there, whatever our theory or law may be. Its utter injustice should impress all.

STANDARDS IN PLANNING FOR RECREATION

L. H. WEIR, Field Secretary, Playground and Recreation Association of America

Standards in planning for recreation may involve consideration of standards as applied to (1) types, size, location and distribution of open spaces for recreation; (2) designs in development of different types of areas; (3) government of a system of recreation; (4) executive administration of recreation; (5) financing. This discussion is limited to the first of these several problems.

Among the various types of recreation areas actually in use in American municipal communities it is possible to distinguish the following more or less clearly:

- I. Children's Playgrounds. These are of two types as follows:
 1. Playgrounds for children of kindergarten age and under.
 2. Playgrounds for children from five to fourteen years of age.
- II. Neighborhood Playfield Areas or Neighborhood Playfield-Parks.
- III. Miscellaneous Types of Active Recreation Areas.
 1. Bathing beaches on river, lake or ocean.
 2. Golf Courses.
 3. Athletic Fields and Stadiums.
 4. Municipal Camp Sites.
- IV. Areas in Which Landscaping is a Predominating Characteristic.
 1. Ovals, Triangles, Circles and other very small areas.
 2. "Intown" Park Areas or Neighborhood Parks.
 3. Large Recreation Park Areas.
 4. Reservation or Forest Park.
- V. Boulevards and Parkways.

VI. Areas Devoted to a Specific Educational-Recreational Purpose and in Which Landscaping is a Prominent Feature.

1. Botanical Gardens.
2. Arboretums.
3. Zoological Parks or Gardens.

VII. Miscellaneous Areas.

1. Sites for Bath and Swimming Centers.
2. Sites for Community Houses.
3. Sites for Museums of Different Types.
4. Sites for Utilitarian Structures and Uses.

In actual practice there is not always the clear line of demarcation among these several types of areas as indicated above. Thus a single area might include a kindergarten playground, a children's playground, a neighborhood playfield or neighborhood playfield-park, an athletic field and similar facilities. In fact, the inclusion of several different types of areas in one area is more the rule than the exception, but there are a sufficient number of exceptions to make it worth while to take note of the possible classification as presented above.

It is next to impossible to state specific standards relative to the majority of these various types of areas.

LITTLE CHILDREN'S PLAYGROUNDS

In any given community the child population under five years of age comprises about ten per cent of the total population. In residential areas composed of single family houses the yard spaces about the homes if properly designed ought to provide the necessary play space. In residential areas of high density population a specific area should be reserved in the interior of each block. While this is a problem which should receive thoughtful consideration by city planners it is very doubtful whether any public plan for proper maintenance and supervision of these areas can be successfully developed. The examples of such areas in several cities are conspicuous by their neglect and improper handling. This involves a degree of community-block organization which is very difficult to

secure. Except, therefore, as special provision is made for little children in older children's playground areas, neighborhood play-field-parks, neighborhood parks, large landscape recreation parks further consideration of this type of open space will be dropped from this discussion.

CHILDREN'S PLAYGROUNDS

During the past five decades the average per cent of the children from five to fourteen years of age inclusive of the total population is approximately 22 per cent. At the present time this age group is probably only about twenty per cent of the total population. Thus in a city of 100,000 population it is reasonable to expect that there are 20,000 children of this age group. City planners should be fundamentally concerned with adequate provisions for the outdoor activities of this age group. With respect to the number, distribution and size of children's playground areas in the city plan my own conclusions are, after a very extensive study of this problem, that in number they should be at least as numerous as the grade schools and junior high schools; that in the main their distribution should coincide with the distribution of these schools; and that the minimum desirable size should be not less than five acres for each grade school and not less than ten acres for each junior high school. I believe that in fixing standards for children's playground areas in planning all residential sections of cities that a certain minimum area should be taken as the base irrespective of the number of children who are likely to be present under different types of housing developments and irrespective of whether one-quarter, one-third or other percentages of these children will be present at any one time. This minimum size is determined by the desirability of a three-division layout, by the space occupied by the games which children from five to fourteen inclusive should have a chance to play, by the site of the school building or other structure, and by the fundamental desirability of making these areas as attractive as possible through landscaping. They should all be treated as small parks. Of the five acre minimum at least from three to three and one-half

should be developed for activities and the remainder used as the site for a structure—school building or other structure—and for landscaping.

There is a tendency in planning school systems to erect larger buildings than formerly, housing as many as from 800 to 1,000 or more pupils. In unbuilt-up sections of cities and in sections built-up with single-family houses this tendency operates to widen the radius from which children are drawn but the aim apparently is not to widen the radius beyond one-half mile. Where the density of population approaches fifty per acre a school building will probably be required in each quarter section (160 acres) and except in parts of very large cities with an extremely high density of population school buildings will probably not be provided more thickly than one every quarter section.

Several attempts have been made by different authorities to determine standards as to the size and distribution of children's playgrounds. It is illuminating to apply these standards to different densities of population in a given area.

In "Public Recreation" Vol. V, Regional Survey of New York and Its Environs, 1928, pp. 122-123 and 129, Mr. Lee Hanmer presents the following standards for children's playgrounds: 100 square feet for each child playing in the playground at a given time, or 25 square feet for each child five to fifteen years of age within a radius of approximately one-fourth mile.

Mr. Henry V. Hubbard, School of Landscape Architecture, Harvard University in an address before the Fourteenth National Conference on City Planning, Springfield, Mass., 1922, stated that the children's playground should allow 140 square feet for every child. "Reckoning one-quarter mile as an effective radius, a population of two hundred people per acre, one-fifth of whom are children under twelve and one-third of whom might be expected to be on the playground at the same time, the maximum size of the playground should be about seven acres. This type of playground would generally include space for the little children's playground so that the two are not differentiated in actual practice."

The Committee on Recreation Problems in City Planning of the Playgrounds and Recreation Association recommended that there should be from four to ten acres as near as possible to the center of a child population of five hundred children from five to fourteen years of age and that the most effective radius of this type of area was about one-half mile. This Committee also suggested that elementary schools should have a minimum of eight gross acres and that intermediate schools should have from ten to twenty acres. The Committee further suggested that the normal amount of play space for each child at the maximum development of the elementary school should be two hundred square feet with one hundred square feet as the absolute minimum.

Now let us apply some of these standards to a residential area of 160 acres using different densities of population. It is assumed for purposes of calculation that there will be approximately 4.2 persons per family, and that one-fifth of the total population will be children from five to fourteen years of age, inclusive.

Example 1: 6 families per acre, 960 families, 4,022 persons, 806 children from 5 to 14 years of age.

Hanmer standard: 25 square feet per child equals 20,150 square feet or slightly less than one-half acre for the playground.

Hubbard standard: 140 square feet per child, one-third of children on playground at one time would equal 37,612 square feet for the playground or approximately .86 of an acre.

Committee of P. R. A. standard: 4 to 10 acres for each 500 of children from 5 to 14 years of age would equal approximately from 6 to 12 acres for the playground.

Example 2: By increasing the density to twelve families per acre we would have from the Hanmer standard slightly less than one acre, from the Hubbard standard about 1.72 acre, and from the Committee of the P. R. A. standard approximately 12 to 30 acres.

Example 3: By increasing the density to 24 families per acre we would have from the Hanmer standard slightly less than 2 acres; from the Hubbard standard about 3.4 acres; and from the Committee of the P. R. A. standard from 24 to 60 acres for the playground.

Example 4: Increasing the density to 48 families per acre the Hanmer standard would yield about 3.7 acres; the Hubbard standard, 6.8 acres; and the Committee of the P. R. A. from 48 to 160 acres.

The standard of the Committee of the P. R. A. is obviously impracticable except in an area of low population density. The Hanmer standard does not give sufficient space for effective planning of a children's playground until a very high density is reached and then the space would be entirely inadequate. The Hubbard standard secures an area fairly suitable for effective planning when the density of the total population reaches 100 per acre (24 families per acre). In both instances the resultant areas are too small to meet the needs of the children and especially so if the sites are also sites of school buildings. Standards of this character are not desirable to use in any residential areas of low density population and certainly not desirable to use in all new residential areas of our towns and cities. This is a very important consideration when all indications of the movement of population in this country point to the fact that by 1960 the population of this country will probably be from 80 to 85 per cent urban. It ought not to be considered unreasonable to set aside from three to five per cent of each 160 acres of new areas that will be covered by the homes of these additional millions of city dwelling people and also to secure these small play spaces now in partially developed residential sections of cities. The Hanmer and Hubbard standards are valuable as guides in the replanning of old built-up sections of cities, especially large cities, where any amount of open space for playgrounds would represent a gain over present conditions.

NEIGHBORHOOD PLAYFIELD-PARKS

The neighborhood playfield-park is what I consider the second most fundamental type of open space for the active recreations of the people in any given city. This is an area intended primarily to provide opportunities for active outdoor recreations for all the actively inclined population from about fifteen years of age and

upwards. It is to serve both boys and girls and men and women. It may also include a children's playground section and, where large enough, may include a neighborhood park.

Different authorities have advanced different standards as to the size and distribution of these areas in the city plan.

Mr. Henry V. Hubbard, School of Landscape Architecture, Harvard University, in an address before the Fourteenth National Conference on City Planning, Springfield, Mass., 1922, stated that this type of area is determined in its minimum size and possible shape by the size and shape of the units which make it up, and that a minimum size for a playfield might be set, for the sake of giving figures, at four acres. "If one acre of playfield is allowed for each ten thousand of the population and the playfield has an effective radius of a half mile in a district of one hundred people per acre, the playfield should be about six acres in extent."

The Committee on Recreation Problems in City Planning of the Playground and Recreation Association of America designates this type of area as a district playground and states its purpose as "for the active play of adults and young people over twelve years of age. It offers natural advantages for some park effects, especially where connected with or touching main streets. To do this the district playground must be large enough for a generous layout of games such as baseball, football, tennis and track athletics and yet offer park developments with one or more small groups of trees. It must be capable of use for picnics, field days, and national celebrations for the district without crowding the regular games fields. The size should be from ten to twenty-four acres. There should be one such playground for every ten to twelve thousand inhabitants. The most effective radius is one-half to one mile.

Another authority suggests that five per cent of every square mile of inhabited area should be set aside for this type of recreation area.

In "Public Recreation," Vol. V, Regional Survey of New York and Its Environs, 1928, page 129, Mr. Lee Hanmer advances the standard for athletic fields and playfields as follows: 1,000 square

feet for each player on the field at a given time, or 50 square feet for every person of twelve to twenty-four years of age in borough or city.

The National Playing Fields Association of Great Britain in a report covering a period from May 1, 1927 to April 30, 1928, says: "The Association advocates, as the minimum standard at which all local authorities should aim, five acres of public open space for every 1,000 inhabitants, of which four acres should be available for team games and recreation; or, alternatively, ten per cent of the area controlled by the local authority, whichever is more. This standard which has never been seriously challenged, was based on the results of a careful inquiry into the actual needs of the community. It has been widely quoted with approval and accepted by many local authorities."

There appears to be a fairly general agreement among planners that the effective radius of the playfield-park is approximately one-half mile and this principle has been accepted by the courts in those cities having a district assessment method of acquiring and improving this type of property, notably in Minneapolis. This principle indicates that there should be one such property in every square mile of residential area.

The practical application of some of the standards which have been advanced under conditions of varying densities of population, using one square mile as the basis of calculation shows some very interesting results.

The following table shows the approximate population in one square mile under varying densities of population.

<i>Number of Families per Acre</i>	<i>Approximate Density per Acre</i>	<i>Total Population</i>
6.....	25	16,128
12.....	50	32,256
24.....	100	64,512
48.....	200	129,024

Mr. Hubbard's standard of one acre to every 10,000 persons would yield approximately 2, 4, 7, 13 acres, respectively, in each square mile.

Mr. Hanmer's standard, assuming that the age group from 12 to 24 years of age represents about 22 per cent of the total population, would yield approximately 4, 8, 16, 32 acres, respectively, for each square mile.

The standard of the National Playing Fields Association of Great Britain (five acres for every 1,000 inhabitants) would yield 80, 160, 320, 640 acres respectively which is obviously impracticable except in areas of exceedingly low population density.

The standard of the Committee on Recreation Problems in City Planning of the P. R. A. (10 to 24 acres for each 10,000 inhabitants) would yield 20-48, 40-96, 80-192, 160-364 acres respectively in each square mile which is likewise impracticable except under conditions of low population density.

Of all these standards Mr. Hanmer's appears to be the most practical except as applied to low density population conditions. Except under conditions where the population density is under 50 per acre it yields areas of such size as to permit effective developmental designing for playfield purposes.

I personally think that in determining the desirable minimum size of a neighborhood playfield-park the important factor is not the possible number of patrons within its radius of influence but the requirements for a proper divisional layout and for a proper layout of play facilities in each division of the area. A fully developed neighborhood playfield-park may have five, more or less, distinct divisions—children's playground area, girls' and women's games and athletic field, boys' and men's games and athletic field, site for field house or for a community house and swimming pool, a fairly wide parked border and, if possible, a neighborhood park. On areas used as sites for junior and senior high schools the school building will take the place of the community house. To secure this type of layout the least possible minimum size would be ten acres and fifteen acres would be preferable, especially if the site happens to be the site of a junior or senior high school. It is noteworthy that leading educators are insisting on sites of from twenty acres upwards for high schools in all new sections of cities. Some school

authorities are securing as much as ten to twenty acres for grade schools also. This plan operates most happily where the drawing radius of the schools is based on one-half mile.

My own conclusions are that in every square mile of residential sections of cities the least desirable minimum is approximately two per cent of the total area or about twelve acres, ranging from this absolute minimum upwards to five per cent of the total area or about thirty-two acres. In point of fact there are many playfield-parks in cities of this country much larger than this maximum and even some of our large landscaped recreation parks are rapidly becoming playfield-parks.

Among miscellaneous types of active recreation areas the stadium and highly developed athletic field are in reality highly specialized forms of the neighborhood playfield-park. At the present time there is no standard by which it can be determined how many such highly specialized areas for organized games and sports a community of a given size should have. Their size is determined by the space requirements of the games and sports provided for, the seating arrangements, and space required for parking automobiles and landscape adornment. To provide for all these factors on a minimum basis would require about fifteen acres. Accessibility to the general public is a prime consideration in the location of athletic fields and stadia.

With respect to bathing beaches, whether such a feature is included in any city plan depends entirely on the presence of topographic factors permitting such a development. Their location also depends entirely on the topographic factor. They may be entirely within any given city or may be located and operated successfully outside a city within a radius of twenty miles or more. Mr. Lee Hanmer ("Public Recreation," Vol. V, Regional Survey of New York and Its Environs, 1928) suggests that one linear foot of shore per person is required. Thus one mile of beach would accommodate approximately 5,000 persons.

The number of golf courses any given city community might have may be roughly determined by the number which the people

will support at fees within reach of the average citizen since it is now customary to charge fees for the use of this type of active recreation area. They may be located either within or without the city limits and either within existing large parks or reservations or on special areas acquired for the specific purpose of golf. The tendency is to acquire special areas. The size of golf parks may range from forty acres as a minimum for nine holes, to eighty and one hundred acres for eighteen holes.

Municipal camp sites are areas designed to provide summer outing facilities for boys and girls, and in some instances for entire families. A reasonable degree of isolation and entire change of environment is desirable, hence they should be located outside of the city limits at distances varying from a few to as much as three hundred miles. The topography of the site should be varied and should include a water form of some kind such as a creek, river, lake shore, or ocean shore, if possible. It is not desirable to have a camp site of less than a minimum of ten to twenty acres. A study of two hundred and twenty-six private and community organized camps in 1922 showed that the average immediate camp site was about twenty-five acres and that the gross average acreage was one hundred and five acres. Numbers of camp sites occupy hundreds of acres. There is no standard to determine the number of camps which any given city community might use.

Among areas in which landscaping is the predominating characteristic, ovals, triangles and other small odds and ends of properties found in park systems simply happen as a result of subdivision layouts. No standards govern their size, location and distribution.

For the adornment of residential neighborhoods and downtown business sections of cities the "intown" park areas or neighborhood parks are important units in the open space system of any city. Functionally these areas provide as near an approach to nature as many city dwellers ever see or come in contact with; they enhance property values; they provide breathing, rest and relaxation places for the inhabitants and to a more or less extensive degree a certain amount of opportunity for semi-active recreation

in the form of walking, listening to band concerts, taking part in or observing a festival, play, pageant, and other public gatherings of various kinds. Their distribution should be governed by the same principle governing the distribution of neighborhood playfield-parks but their numbers should be greater than the latter for the reason that they are highly desirable in commercial and industrial districts as well as residential sections. The size of such parks vary so that it is difficult to state any standard.

The large landscape recreation park found within or in the immediate environs of cities is a type of property much emphasized in the days before automobiles. It represented a deliberate attempt to preserve or bring a country environment more or less enhanced by the skill of the landscape architect into the city. It was an attempt to provide opportunity for the city dweller to escape from a man-made environment where he could feast his eyes and refresh his soul on the beauties of nature and where he could get away from too close contact with his fellows if he wished. Gradually active forms of recreation have been introduced into these areas until today many of these large recreation parks are simply huge neighborhood playfield-parks serving a much wider area than its smaller neighbor. One authority has suggested that there should be one such area for every forty thousand inhabitants but this is not based on any scientific data. No one can measure definitely how much open space of this character any given city community should have. It is rather a question in most cities of preserving certain topographic features which might better be used for adornment and recreation than other purposes, such as stream valleys, broad strips of land along rivers, the shore areas of lakes often including the lakes themselves, ocean shores and rugged topography costly to lay out and build on.

The functions of the large city landscape recreation park since the advent of the automobile has largely been superseded by another type of a more naturalistic kind called variously outlying forest park, reservation or forest preserve, located outside the city within a radius varying from a few miles to as much as fifty miles.

Next to children's playground areas, and neighborhood playfield-parks I consider the forest park or reservation the more fundamentally valuable in relation to the welfare of the people than any other type of area. No standard can be fixed as to their size or number.

My judgment is that practically all the larger cities of the country ought to be thinking and planning in terms of larger acreages than any of them at the present time possess. I further believe that even the small cities should have at least one large area of this character.

The day when park and recreation department should be called on to construct and maintain boulevards is, in my judgment, past and I feel the same way about highway construction and maintenance in parkways. Practically all the so-called boulevards in cities of this county today are rapid transit ways and much the same can be said of the roadways in the outstanding parkways of the country. These roadways should better be considered as integral parts of the system of highways of the city community and its environs than as pleasure driveways. The landscape care of planting strips along so-called boulevards and of the park-like areas of parkways is still, I think, a function of park departments.

Botanical gardens, arboretums and zoological gardens are specialized educational-recreation features found in modern park and recreation systems. In general I consider it desirable to set aside specific separate areas for these purposes although they may be properly a part of the design of large landscape recreation parks or even in outlying reservations. In my judgment not nearly enough attention has been paid by the park departments of this country to the development of arboretums and botanical gardens and too much attention, especially in the smaller cities, has been given to establishing zoos most of which are zoos only in name. For a detailed discussion of these features in modern park and recreation planning see the chapters devoted to these subjects in Vol. II, "Parks—A Manual on Municipal and County Parks," Barnes and Company, New York, 1928.

TOTAL ACERAGE REQUIRED IN A COMPREHENSIVE SYSTEM OF
OPEN SPACES

The question is continually being raised as to what total amount of open space of all kinds any municipal community of a given population should have for recreation. The standard of one acre to every hundred of the population has been widely used and quoted. But such a statement as applied to any city is practically meaningless without an analysis of the types of units which go to make up the system of open spaces.

In "Public Recreation," Vol. V, Regional Survey of New York and Its Environs, 1929, Mr. Lee Hanmer comes to the conclusion that there should be one acre of open space, exclusive of large parks and outlying reservations, to every 300 inhabitants as a maximum and one acre to every 500 inhabitants as a minimum, or in lieu of this ten per cent of the total inhabited area.

Let us take a hypothetical example of a city of 100,000 inhabitants. Applying the general standard of one acre to every 100 inhabitants the result would be a grand total of 1,000 acres of open spaces.

Assuming 4.2 persons to a family there would be in a population of 100,000 approximately 23,809 families. At a density of 6 families per acre these 23,809 families would occupy about 4,000 acres or approximately 6.2 square miles.

Applying the standard of from 3 to 5 per cent of each quarter section for children's playgrounds would give a total of from 120 to 200 acres, divided into about 25 different properties which would be about the number of school sites a city of this size should have. In point of fact, most cities of this size have more than 25 school sites because of the uneven distribution of the population and other factors.

Applying the standard of 5 per cent of each square mile for neighborhood playfield-parks would give approximately 6 areas of 32 acres each, or 192 acres.

Thus the total desirable acreage in those two types of properties, including also neighborhood parks in the neighborhood playfield-

park areas would be from 312 to 392 acres. These figures are not far from Mr. Hanmer's standard of one acre for every 300 persons and not greatly away from his standard of ten per cent of the total inhabited area.

Adding to this acreage other desirable types of areas in a comprehensive system of open spaces such as small parks in business sections of the city, one or two large landscape recreation parks and, perhaps, an outlying reservation, etc., it is readily seen that the old standard of one acre to every 100 inhabitants is not only very conservative but is in reality too low.

WHAT MAKES "THE CITY BEAUTIFUL"?

GEORGE B. FORD, Technical Advisory Corporation, New York City

The "Tin Lizzie," effective but crude, the butt of America's jokes, has been forced to give way to the stream line Model A that no one as yet has dared to nickname. Popular demand now insists on looks as well as service.

Not many years ago the American Locomotive Company discovered that the Baldwin Locomotive Works were getting most of the international orders, whereupon the chief designer of the American Locomotive Company decided to try a stream line locomotive. The effect was immediate and the company which first featured appearance in their locomotives won the foreign orders even at a higher price.

In many of our latest airplanes and radio sets the makers find that attractive lines and good color pay. Even our bridges, our factories, our furniture, our utensils, one and all have improved vastly in their appearance within the last few years. No one can be so blind as not to see that quality is replacing quantity in the popular demand.

We have found that the mere machine, however efficient it may be, does not satisfy the soul. It is proving only too true that "Man cannot live by bread alone." In a flood of recent "Main Street" books we have been shown all too graphically what drab, barren, uneventful lives we live. Yes, most of our towns are colorless and anything but inspiring and so perhaps a wistful longing comes over us to recapture some of the beauty of life that seemed to promise in the fascinating years of childhood.

Even the hard-headed practical business man may make a cult of

decrying whatever savors of beauty as something effeminate, the work of long-haired dreamers. Yet that same man often insists on good-looking furniture, a beautiful etching or painting in his office, or he spends much time picking out just the right cravat or a new spring suit. He gets away as soon as he can to go out to a beautiful golf course, cunningly landscaped, and for his vacation he goes to the mountains, or the shore, or the woods, where nature is at her most perfect.

No, the demand for beauty is innate, and while a certain Puritanical hold-over and a childish expression of red-bloodedness may induce us to repress outwardly our need for beauty, nevertheless it is there waiting for release. All that was needed was that good looks should become "the thing." The turning point has come. Today beauty is no longer looked at askance. Today we can insist on attractiveness in our surroundings without being thought queer. No longer do we have to make our towns merely safe, healthy and convenient. Openly we can make them attractive as well. However, that which appeals to the eye, that which is really attractive, does not just happen of its own accord. It is rarely accidental. Beauty is not a cosmetic, just applied to a building or town. It is not superimposed by planting geraniums or putting filigreed ornaments on lamp-posts. No, beauty is more than skin deep. It is fundamental and basic in the design of any object.

Mr. Frederick Law Olmsted once said, "Beauty is a closer approach to practical perfection in the adaptation of means to ends than is required to meet the merely economic standard." Good looks is doing the efficient thing more appropriately. It means making the bridge or the museum or the factory look the part, express its function, as well as serve its purpose. In any case design implies good taste. Without taste there can be no real beauty, but the great work of art, the building or the town that will live down through the ages, must have in its design that same inspired vision on the part of the creator that characterizes all the great works of art that have come down to us.

The interesting part of it is that this extra effort, this good taste,

this appropriateness, this inspiration need add nothing to the cost. As a matter of fact, experience proves it may even save cost because good taste usually means simplification, and simplification means the elimination of non-essentials. The attractive Model A costs no more than its ugly older sister, the Model T.

Somehow our towns, so well planned for safety, health and efficiency, have failed to inspire our enthusiasm. True, we were boosters for our town because it was the thing to do; it was expected of us, but any other town would have done just as well if our family and our work happened to be there. No, the town lacks charm. It lacks appeal. To be sure, nature gave the town a good start, but from then on the few that loved nature had a constant losing fight to keep even that inheritance intact. The town may have buildings of great historical value or of unique colonial architecture, but one after another they disappear—gone forever, for once gone they can never be replaced.

Our fathers planted street trees because they loved trees. They have become one of the great assets of the town, and yet without a protest the lineman ruthlessly slashes great gashes through them, with only the most feeble protest on our part. We have betrayed our trust. The misguided business man insists on felling the beautiful great elms in front of his store. A curious idea seems to have insinuated itself over the country that trees harm business, and yet the best business streets either in Washington or Paris are lined with trees. In any case, if trees must be removed on account of imperative roadway widening, by all means new ones should be planted to replace them. Fortunately today planning boards all over the country are insisting in their platting regulations that all subdividers shall plant trees along their streets. Perhaps there is no one thing—certainly nothing that costs so little—that can make "The City Beautiful" as street trees.

And then come the street poles and wires. Is there anything conceived by man that can make an otherwise decent street look more tawdry, more one-horse, more down-at-the-heels than a welter of poles and wires? If familiarity only would breed con-

tempt, but instead it merely breeds indifference and the crime persists. Without fail the moment the wires are buried in conduits, or removed to rear alleys or rights-of-way everyone exclaims how much more attractive the street looks, and then they wonder why they had never done it before. Perhaps next to street trees the removal of poles and wires can do more to make "The City Beautiful" than any other one thing.

Then come the billboards, sky signs, signs that overhang the sidewalk and even the wayside stands, but here, most fortunately, we have a strong organized movement, thanks to Mrs. Lawton, Mrs. Rockefeller and others. Today over 800 cities and towns, containing over one-third of the population of the United States and nearly two-thirds of the urban population, have eliminated all billboards and wayside stands from all residence districts, and they are controlling the size and location of advertising signs in business districts. Massachusetts has gone further and has taken the lead in controlling billboards along the highways, while the leading provisioners of the country are setting a splendid example in suppressing the billboards and greatly improving the wayside stands. All of this is helping markedly in making not only the city but the country beautiful and will repay all effort given to it a hundred-fold.

The street lighting fixtures, hydrants, letter boxes and fire alarm boxes are all important. Not many years ago anything would do. Today the fixture supply houses have vastly improved their designs. The result is much more attractive street perspectives. If we could only eliminate the electric light that just protrudes on an iron pipe from the ugly wooden pole. Grass borders, flowers, shrubs, central parklike strips, parkways, attractive kiosks or news-stands, seats, fountains, monuments, statues—one and all make the "street picture." We may not be conscious of them, but subconsciously they give us a sense of well being and satisfaction and a certain unconscious pride in the street that makes the effort devoted to them well worth while. Such an asset do they prove in selling property that the wide-awake subdivider today features

such things as these in his subdivision layout. He finds that they pay.

There is a lot that can be done with the "street picture" either by ordinance or by persuasion. The requirement of most zoning ordinances that the buildings, especially in residence districts, should set back from the street line is a case in point, although subdivision design shows that a lot of the monotony of our streets with their regular setbacks can be avoided by proper grouping of buildings and the grouping of setbacks so as to form a good composition of a block or street as a whole.

The new skyline of New York, with its stepback terraces, towers and gables, is not an accident. Far from it! When we were zoning New York and trying to see how we could get the greatest amount of light and air down into the street we tried at the same time to picture how terraced-back buildings were going to look. To keep them from being monotonous and standardized we made little models in harness soap of virtually all the new types of skyscrapers and many other types besides, and we drafted our stepback regulations so that they would permit all the variety and spontaneity of treatment that we are revelling in today.

In the fire limits of our building codes we are again assuring at least a certain substantialness and permanency in the construction of our more congested districts. In our control of plats and subdivisions, thanks to the broad vision of the National Association of Real Estate Boards, we are not only securing a much more orderly development of our suburbs but a marked improvement in the "street picture" of the new suburban highways.

However, all of this is only a negative control of our street architecture. This municipal control can at best only keep the buildings from being too bad. It does not make the frame of the "street picture" positively good. As far as public buildings and public structures are concerned, there is no doubt but that we have made remarkable progress of late. We have only to look through the architectural magazines to be overcome by the astonishing number of most attractive public buildings that today are scattered from

one end of the country to the other. This is something of which we may well be proud. In part this has been accomplished by the art commissions and art juries which control the designs of all public structures, but primarily this advance is due to a marked improvement in public taste and a noteworthy demand for public buildings in which the citizens may take a legitimate pride.

On the other hand it is the great preponderating mass of dull private buildings that recently led a well-known architect to remark that even Washington was only 25 per cent. good architecturally. That is, only a quarter of the buildings would stand the test of time, whereas he considered that in most of our other large cities we would be lucky if 10 per cent. survived public taste for more than a generation. For a country that is settling down to permanency these are dangerously low averages.

Or, from another point of view, our most lasting impression of a new city or town is our first impression. If that first impression, whether we approach by water, railroad, road or air, is good; if the "gateway" to the town is welcoming and interesting, we carry away a sense of delight that we will never forget. In our airports we can at least profit by the horrible example that the railroad affords, where we often have to go into the city through miles of unkempt factories or squalid tenements,—the city seemingly to turn its back on the visitor—only to arrive in the vast, murky, confusing cavern which serves as a terminal. At least the airport can be bright and welcoming and the approach can be through open fields and attractive suburbs.

Tomorrow our city plans, which yesterday were dead and meaningless things to most of us—just so many lines on paper—are now coming to life, for now we can actually visualize the city map as we approach from the air. It becomes a thing alive with color, form, shadow and movement. So important is this becoming that we are actually beginning already, fortunately, to prevent a repetition of our billboard pest by prohibiting roof advertising, but we must make this prohibition as nearly uniform as we can, and as soon as we can, for tomorrow it will be too late.

Yes, the air pattern of the town is now becoming the test of whether the community is well planned or not. If it "mosaics" well, the planning has been well done.

From the ground, too, we are beginning to study the mass or composition of the town. We study its silhouette to see that the buildings compose well. When you go between Philadelphia and New York on the Pennsylvania and look at Princeton three miles away, with its picturesque massing of roofs, towers and trees, you cannot help feeling the thrill that comes as you stand before a great work of art. In recent studies of Chicago, Detroit, Toronto and Ottawa from the water a similar silhouette was being sought.

"The City Beautiful" is largely a matter of harmony and appropriateness; of fitness of form to function, all of which leads to individuality or personality. A town has personality according as it appears to be appropriate to its function and site. As a matter of fact, the "typical American city" is utterly lacking in personality. It is typical only in so far as it is rubber-stamped—just another standardized model struck from the same old die. By contrast, old Charleston, S. C., Vieux Carré in New Orleans, St. Augustine, Fla., or Beacon Hill in Boston, do have a most refreshing personality because they express with all spontaneity the feeling and purpose of their time and site. Every community has some individuality of its own, if we can only find it to express it. Santa Barbara, rising from its ruins, is doing this very thing and many recent subdivisions from Palos Verdes to Radburn are making a most laudable effort to express appropriateness, harmony and personality. Scale, too, is important, although it is the easiest thing in the world to miss by default as witness the plans to erect 15 and 20 story apartment houses directly on the top of the glorious Palisades opposite New York where the Palisades will be reduced to mere retaining walls for the incongruous cliff dwellings which will soon crush them.

In the last analysis the attractive city is a matter of design—design in form, in color, in texture, full of variety and contrast and yet harmonious; where buildings, public and private, group into interesting masses and silhouettes; where color and texture is

placed so as to actually form good compositions such as you would expect in a good painting or in a good oriental rug; where the views which you get here, there and everywhere throughout the city or town are not a hodgepodge of form or a kaleidoscope of color but an ordered arrangement with all the beauty that any work of art should have.

It is not inconceivable that the congestion piled on congestion that the centers of some of our cities have now attained, is actually precluding the possibility of good civic design. Perhaps we can only attain permanent civic beauty by ruthless decentralization of our cities, saying that if they will grow they must grow centrifugally by the creation of new isolated satellite communities far enough from the center so that they can always avoid the untoward congestion of the metropolitan hub.

However that may be, we will only attain "the city beautiful" as well as the city practical by establishing and maintaining a policy so logical and so appropriate that continuity is inevitable. It is being found in America, as it already has been found in Europe, that the architect is preeminently a coordinator by training. He is particularly suited with his highly trained imagination and taste to take the ideas of the engineer, the lawyer, the economist and psychologist and transmute them into the living inspired plan. He should be given every encouragement to do this most vital thing: by the establishment of art juries or commissions to legally control the design of all public structures, by the creation of advisory architectural councils or commissions as they have in Washington and Santa Barbara, by the creation of street associations, such as the famous Fifth Avenue Association in New York, and by means of subdivision art juries, which through persuasion and gradual education, through the schools and numerous organizations, can gradually make attractive structures, interesting "street pictures," the "thing to do." What we have already done in our automobiles and airplanes we can surely expect to do in the civic design of our cities, towns and countrysides.

California has pointed the way in its famous Planning Act of

1927 which is designed "to best promote the amenities of life, health, safety, etc.," and "the improvement and control of architecture and general embellishment of the area under its jurisdiction." This means a first attempt at a public control of private architecture—a thing which has been accepted for generations in Europe as essential. Perhaps our courts are not ready yet to sustain such a control, but the time is coming in the near future, with popular taste growing as rapidly as it is, when the public will force the courts to extend their protection of property against those things which are offensive to the nose to include those things also which are offensive to the eye.

We are at the beginning of a new era in the planning of our American towns; the pioneer period gave way to a great period of material expansion where efficiency and service were the watchwords. Today with our rapidly increasing wealth and leisure we are insisting more and more on the amenities of life. History says that that means beauty. The new period we are now entering is one where utility and beauty will share alike. Neither will satisfy without the other. Together they will make our American towns a delight and inspiration to all.

THE TRAFFIC ANALYSIS AND FORECAST IN ITS RELATION TO THOROFARE PLANNING

ROBERT WHITTEN, City Planning Consultant, New York City

The traffic analysis and forecast furnishes the chief factual basis for thorofare planning. Traffic routes must of course be designed for the traffic they are to carry. In order to justify a particular project it is necessary to know how much traffic will use it and from what existing routes this traffic will be diverted. It is also necessary to have a reliable estimate of the probable increase in traffic over a considerable period of years.

A traffic flow map made up from traffic counts at numerous points and studies of turning movements at intersections is a great help but falls short of what is necessary to determine the full effect of a particular project. For that purpose we must know where the vehicles using an existing route are coming from and where they are going. The city or region must be divided into traffic districts and the number of vehicles moving daily between each pair of traffic districts determined. To determine the origin and destination of traffic by actual count has seemed too difficult an undertaking. As a substitute a careful theoretical analysis and distribution of traffic has been used as a basis for thorofare planning in Cincinnati, Providence, the New York Region and various other places. The Regional Plan of New York supplemented its general theoretical analysis with limited testings of the origin and destination count method.

In 1927 the United States Bureau of Public Roads made a further application of the origin and destination method in its traffic study of the Cleveland region. The origin and destination of vehicles entering the city gateways was determined. No attempt was made however to determine all the traffic passing between each pair of traffic districts in the Cleveland region.

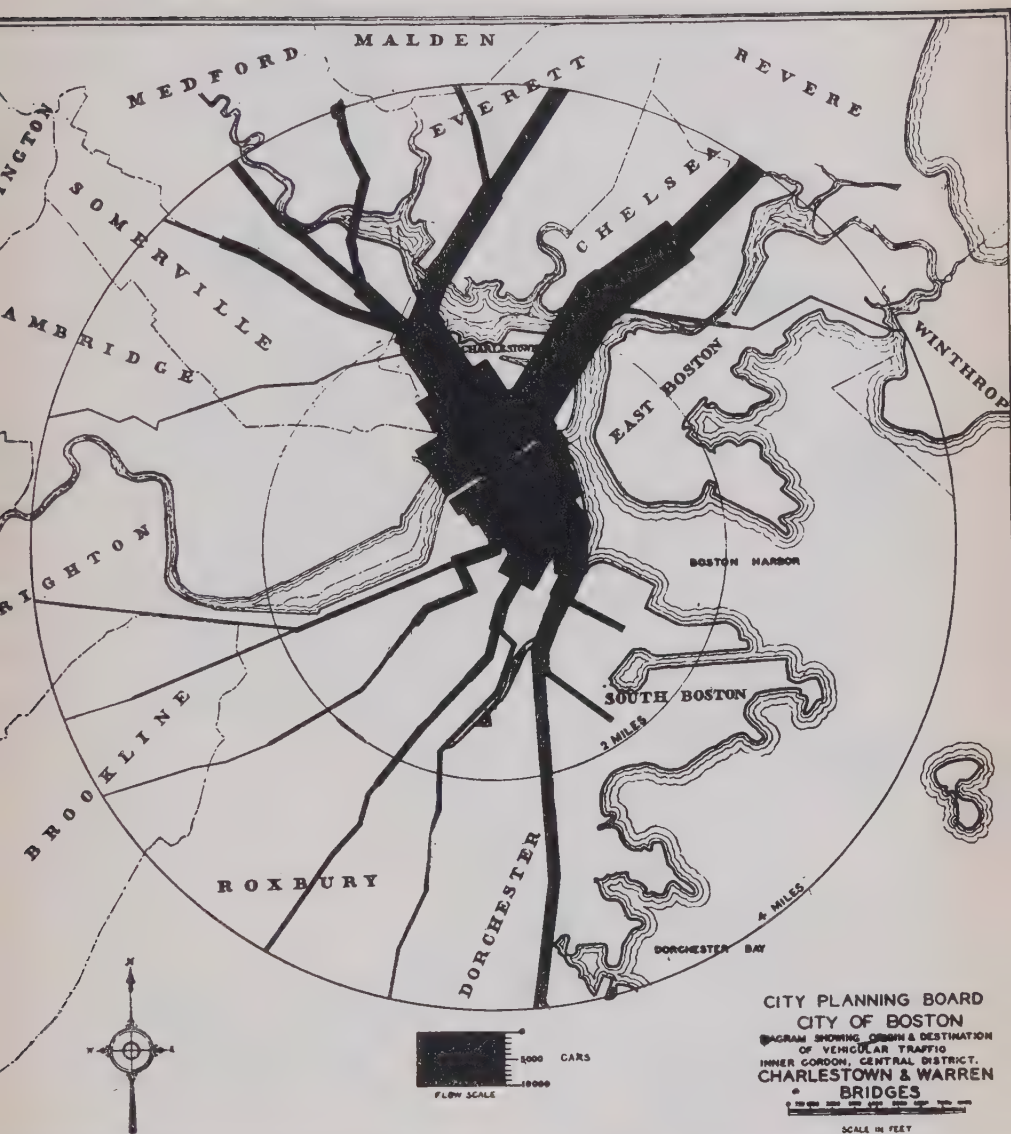
Coincidentally with the work of the United States Bureau of Public Roads in the Cleveland region, there was undertaken in the Boston region a very complete traffic analysis and forecast in which the use of the origin and destination check was very greatly extended.

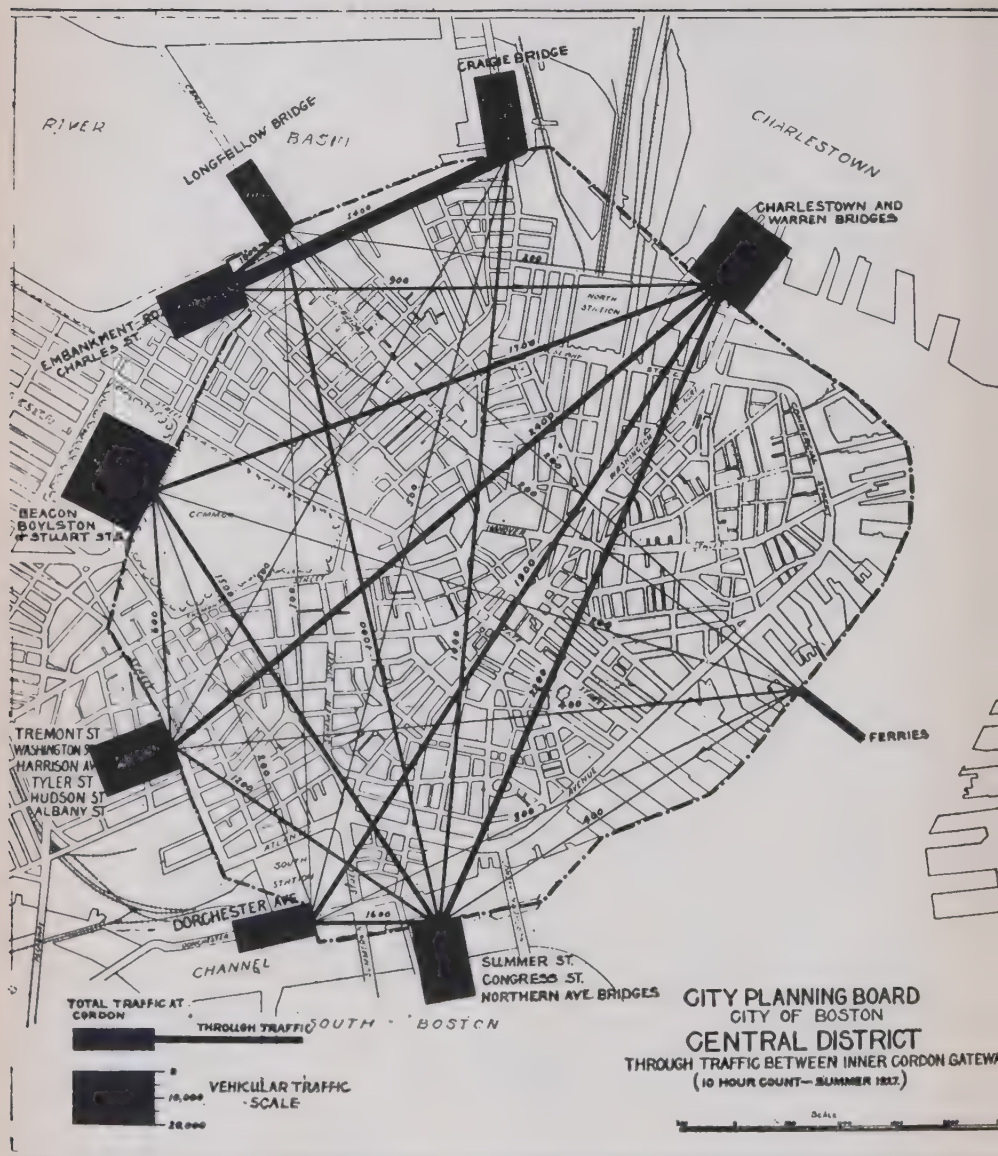
The Boston traffic analysis and forecast had for its purpose the determination of the origin, destination, volume and distribution of traffic throughout the Boston region and a forecast of future traffic growth, to serve as a practical guide in the preparation of a comprehensive thoroughfare plan for the City of Boston as well as a complete highway plan for the Metropolitan District. The work was undertaken with the active co-operation of the Boston City Planning Board, the Mayor's Street Traffic Survey and the Division of Metropolitan Planning. The City Planning Board was starting the preparation of a comprehensive thoroughfare plan for Boston. The Mayor's Street Traffic Survey, organized under the direction of Miller McClintock, was undertaking a study of traffic regulation and methods of expediting the traffic movement. The Division of Metropolitan Planning was starting the preparation of a comprehensive highway plan for the Metropolitan District.

For the purpose of determining the number of vehicles passing through each pair of communities or centers, Boston was divided into twelve traffic districts. These 12 districts, together with the 38 cities and towns in the Metropolitan District outside of Boston, made a total of 50 traffic districts. In addition, each of the 19 radial highways entering the Metropolitan District was considered a gateway traffic district for the purposes of the traffic analysis.

As a basis for estimating the number of vehicles passing between each pair of traffic districts, drivers were questioned at 178 points in the Metropolitan District. One hundred and eight of these origin and destination checks were made within the City of Boston by the Boston Police Department. A total of 188,000 drivers were questioned.

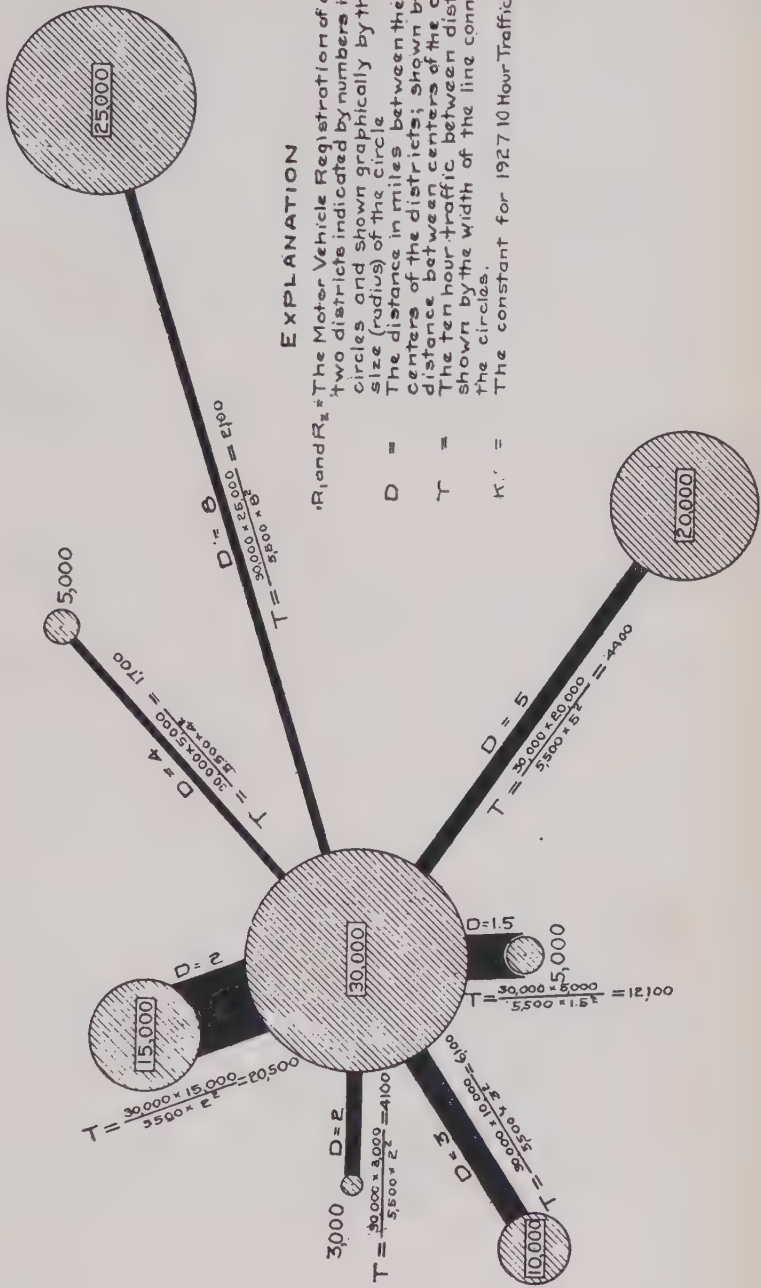
In addition to the origin and destination checks, traffic volume counts were made at 773 points throughout the Metropolitan Dis-





COMMONWEALTH OF MASSACHUSETTS
DIVISION OF METROPOLITAN PLANNING
ILLUSTRATION OF APPLICATION OF TRAFFIC FORMULA FOR INTERDISTRICT TRAFFIC
METROPOLITAN DISTRICT 1927

$$T = \frac{R_1 R_2}{K D^2}$$



EXPLANATION

R_1 and R_2 = The Motor Vehicle Registration of any two districts indicated by numbers in the circles and shown graphically by the size (radius) of the circle
 D = The distance in miles between the traffic centers of the districts; shown by the distance between centers of the circles
 T = The ten hour traffic between districts shown by the width of the line connecting the circles.
 K = The constant for 1927 10 Hour Traffic, 5,500.

trict. From an analysis of the origin and destination checks and volume counts the total daily 10-hour traffic passing between various pairs of districts was determined, and with this as a basis a definite relation between the number of motor vehicles owned in a district and the traffic to and from that district was determined, as was also a definite relation between the distance between two districts and the traffic between them. It was found in general that traffic between any two pairs of traffic districts varies directly as the motor vehicle registrations of the districts and inversely as the square of the distance between them. It was possible to state this in the form of a general traffic formula applicable to inter-district 10-hour traffic in the Boston area in the year 1927, as follows:

$$T = \frac{R_1 R_2}{5500D^2}$$

In this formula T represents the total 10-hour traffic. R_1 and R_2 represent the respective motor vehicle registrations of any two traffic districts. D represents the distance in miles between the two traffic districts.

In applying the above traffic formula, it was found necessary to make modifications in a number of instances. It was found that for Central Boston and for South Boston motor vehicle registration was not a correct indication of traffic importance. These downtown districts are largely devoted to business and industry and traffic to and from them is about double that that would be obtained by the use of their motor vehicle registration in the above formula. Moreover, it was found that as to traffic to and from Central Boston the general rule that traffic varies as the square of the distance will not apply unless the distance factor is so adjusted as to take account also of the relative speed factor; that traffic to and from Central Boston did not vary as the square of the distance was shown to be clearly due to the slowing up of traffic in and around the congested area.

While distance is undoubtedly a chief factor in determining the amount of traffic between pairs of communities of the same general

size and character, there are other factors that have their influence. A poor pavement will reduce traffic. A pleasant parkway will increase traffic. The necessity of traveling at reduced speed through narrow congested streets will greatly reduce traffic. Instead of the general rule that inter-district traffic varies inversely as the square of the distance, it would be more accurate to say that traffic varies inversely as the square of the distance as weighted by the speed, by physical condition of the roadway and by the general safety, comfort and attractiveness of the route. However, our analysis shows that for the most part these factors so offset or balance each other that they may be disregarded for the purposes of this study. The one outstanding exception is Central Boston, where, owing to the slowing down of traffic within the Central District itself and in adjoining areas, the rule of the square of the distance was not applicable, except after a weighting of the distances so as to take speed into account.

Using the origin and destination count supplemented by the traffic formula a single table was prepared showing the average 10-hour 1927 traffic between each of 2,273 pairs of traffic districts. There were a total of 69 traffic districts, including 19 gateway districts. Combining these districts by twos gave 2,273 combinations or pairs.

In estimating future street traffic it may be assumed that general traffic will increase in the same ratio as the motor vehicle ownership or registration. To determine future motor vehicle registration, it is necessary to determine the future population and the future ratio of motor vehicles to persons. Curves showing the number of motor vehicles per thousand persons for various states and for the United States as a whole indicate a fairly steady increase in geometric ratio from 1905 to 1923. Between 1923 and 1927 the rate of increase decreased each year. This indicates that a permanent change in the rate of growth of the automobile took place in 1923 and that future growth will be at a steadily declining rate. The following table gives the estimated motor vehicle registration and number of cars per thousand persons in the Metropolitan

District by five-year periods to 1965. In 1927 there were 177 cars per thousand persons. By 1935 it is estimated there will be 224.8 cars per thousand persons. Subsequent to 1945 the increase in the number of cars per thousand persons will be almost negligible.

ESTIMATED POPULATION AND MOTOR VEHICLE REGISTRATION OF
THE BOSTON METROPOLITAN DISTRICT BY FIVE-YEAR PERIODS
TO 1965

Year	Population	Motor Ve- hicle Reg- istration	Ratio to 1927 Registration	Cars per 1000 Persons	Persons per car
1927	1,860,264	329,183	1.00	177.0	5.65
1930	1,990,700	409,100	1.24	205.5	4.86
1935	2,139,500	481,000	1.46	224.8	4.45
1940	2,284,300	530,400	1.61	232.2	4.30
1945	2,425,100	570,100	1.73	235.1	4.26
1950	2,559,900	604,900	1.84	236.3	4.24
1955	2,686,700	635,700	1.93	236.7	4.23
1960	2,805,400	664,900	2.02	237.0	4.22
1965	2,914,100	690,700	2.10	237.0	4.22

On the basis of the trend in the curve showing number of automobiles per thousand persons, the motor vehicle registration of each traffic district was computed for the year 1965. It was assumed that the general relationship between traffic registration and distance found to hold true in 1927 would hold true in 1965, and the traffic formula with its constant varied to correspond with the increase in motor vehicle registration became:

$$T = \frac{R_1 R_2}{11,500 D^2}$$

Using this general formula, modified in certain instances, the traffic between each pair of districts was estimated for 1965.

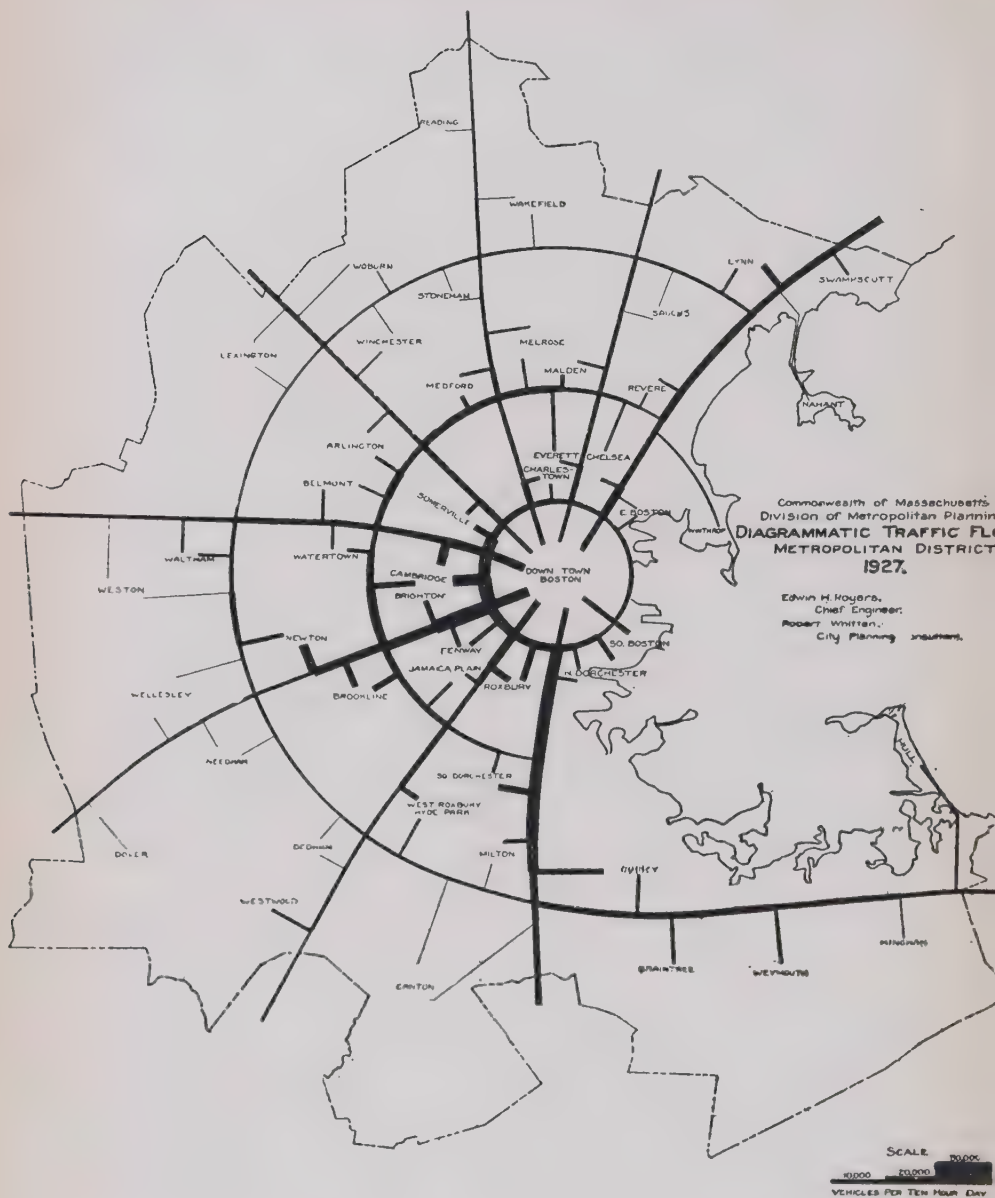
The data contained on the charts giving the traffic between each pair of traffic districts in 1927 and 1965 was used in preparing diagrammatic flow maps. A schematic diagram of radial and circumferential routes was prepared without regard to the location of existing highways, but so arranged as to secure a reasonably direct route between each pair of traffic districts. There are 8 of these imaginary radial, and 3 of the even more imaginary circumferential

routes. The traffic between each pair of districts was then routed from district to district and the number of vehicles passing each station computed and plotted to form the diagrammatic flow map. The traffic to and from each district is shown by spurs out from the main route toward the district name. There are normally two such spurs to each district—one from a radial and one from a circumferential route. The district traffic was allotted to the circumferential spur or to the radial spur depending on which offered the more direct route between origin and destination. In routing from origin to destination that combination of radial and circumferential routes was used that gave the shortest trip.

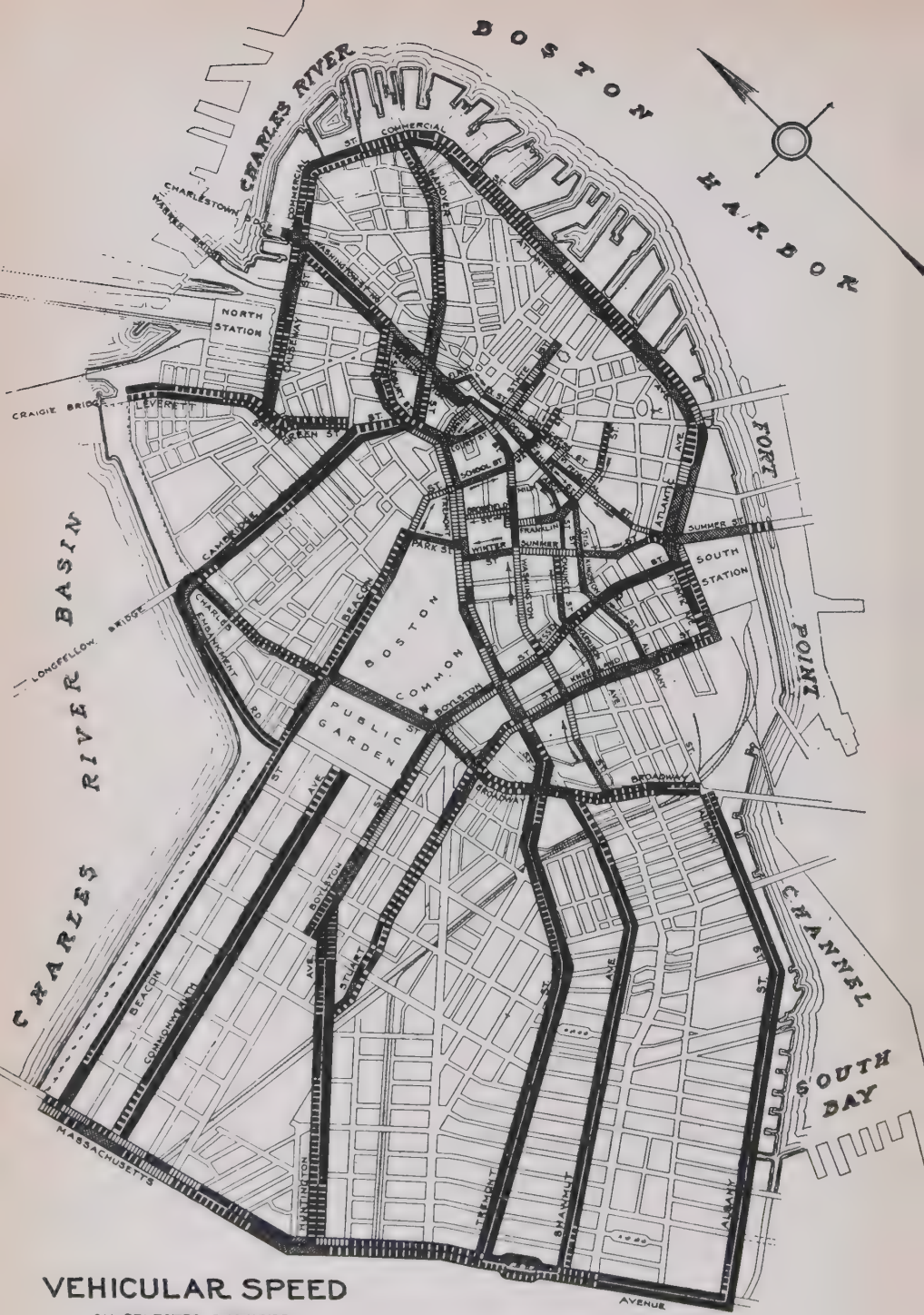
It is the purpose of the diagrammatic flow maps to indicate something of the origin and destination of the traffic volume and the traffic volume that would be inconvenienced by particular thorofare projects. A comparison of the 1927 and 1965 maps is particularly valuable as this indicates the varying ratio of increase in traffic that may be expected in various sections of the community. Though it is estimated that for the Metropolitan District as a whole there will be approximately $2\frac{1}{2}$ times as much traffic in 1965 as in 1927, the varying rates of growth in population of the traffic districts and the varying ratio of persons per motor vehicle will obviously bring about an uneven distribution of traffic increase throughout the Metropolitan District. This is clearly shown by comparison of the 1927 and 1965 diagrammatic flow maps. The normal ratio of 1965 to 1927 traffic varies from 1.5 to 3. The greater ratios usually occur in the outer portion of the district, where the larger increases in population are to be expected. The ratios are especially high in the sectors to the west and the south. The increase in the outer circumferential flow is quite apparent.

Using the information thus far obtained in relation to the volume and distribution of traffic the next step was the preparation of a tentative thorofare plan for Boston so designed as to relieve existing congestion and provide for the probable increase in traffic as shown by the traffic analysis and forecast.

To test the tentative thorofare plan a flow map was prepared







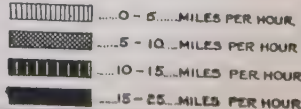
VEHICULAR SPEED

ON SELECTED STREETS

DOWN TOWN BOSTON

1927.

LEGEND:



using both the existing and proposed routes. The traffic between each of the 2,273 pairs of districts was routed from district to district and the number of vehicles passing each station computed to make up the flow map. This map could then be compared with the map showing existing flow on existing routes made up from the traffic volume counts. A comparison of these two flow maps, the one showing the 1927 traffic flow on the existing roads and the other the 1927 traffic flow on the existing and proposed routes, indicates clearly the value of the new street projects in reducing traffic congestion at Governor Square and throughout the central business area. It also shows the correction of a number of fundamental defects in the Boston street system notably by the creation of a great north-south express road, improving access between the north shore and the south shore.

Accurate information as to the present average speed of vehicles throughout the existing traffic system is of very great importance both in locating the difficulties of the present highway layout, and in determining the design and economic value of the projects contained in a thoroughfare plan. Studies made by Miller McClintock had determined the travel time on all traffic routes in Downtown Boston and also on 16 main routes radiating in every direction from central Boston. These travel time studies showed at once the comparative inadequacy of the existing routes leading to the northeast and south from central Boston. These studies also showed a serious slowing up of traffic in various locations.

The travel time studies give a basis for estimating the saving of time to vehicles using the proposed new routes as compared with present routes of travel. In most cases an estimate of time saving furnishes the best basis for estimating the economic value and justification of a project. For example, it was estimated that each of the 10,000,000 vehicles that would in the year 1936 make use of the proposed Blue Hills Radial would save ten minutes in travel time as compared with the existing routes. If this time saving is valued at two cents per minute this means an annual economic saving of \$2,000,000 to the users of the proposed express road.

This represents an annual return of over 20% on the estimated cost of the project.

The general ratio of increase in traffic as compared with 1927 is shown by five-year periods to 1965 in the accompanying table. As traffic in Boston will in general increase in the same proportion as the total motor vehicle registration for the Metropolitan District, it is seen that in 1930 traffic will in general be 1.24 times the 1927 traffic; in 1935, 1.46 times; in 1950, 1.84 times; and in 1960, 2.02 times the 1927 traffic.

This indicates a general doubling of traffic by 1960. This will be an average yearly increase of but 3 per cent. But the major portion of this 100 per cent total increase will come within the next 15 or 20 years. In fact it is estimated that one-half the total will come by 1936.

The analysis of the origin and destination of traffic throughout the Metropolitan District enabled an accurate determination to be made of the inter-district traffic between the 69 traffic districts within the Metropolitan District. Not counting through traffic that had neither origin nor destination within the Metropolitan District there were during a 24-hour day in 1927, 630,000 inter-district trips having an average length of 6.34 miles. This produced a total mileage for inter-district traffic of 4,000,000 vehicle miles.

The determination of the inter-district mileage as above was a fairly simple process using the data at hand. It seemed desirable to supplement this data with an estimate of the number of local trips within each traffic district and the total mileage of local trips. A careful analysis of the traffic data indicated a total of 650,000 local trips having an average length of 1.42 miles. This gives a total local trip mileage of 925,000 miles.

The local mileage, plus the inter-district mileage, amounted to 4,925,000 miles a day or 1,800,000,000 miles a year. The total number of local and inter-district one-way trips per day was 1,280,000. The average length of trip, for both inter-district and local, was 3.85 miles.

In 1927 there were 329,183 motor vehicles registered within the Metropolitan District. The above total mileage gives an average daily mileage per registered motor vehicle of 15 miles. Fifteen miles per day is at the rate of 5,480 miles per year. This is not a high yearly average. Most estimates use 6,000 or 7,000 miles per year as a fair average. It is to be noted, however, that the estimate is based on total mileage within the Metropolitan District. It includes mileage of cars from without the district making trips into the district and it excludes all mileage made by cars owned within the district while on trips outside of the district.

Ten cents a mile is a fair average cost of motor vehicle operation when garage cost, interest, depreciation and insurance are included. Within the Boston Metropolitan District street vehicles in 1927 traveled a total of 4,925,000 miles a day, or 1,800,000,000 miles a year. This gives a daily street transportation cost to the owners of motor vehicles in the Metropolitan District of \$492,500 a day, or \$180,000,000 a year. This is an impressive indication of the importance of the motor vehicle as a major element in the transportation system of the community.

Probably in every city in the United States with the single exception of New York City, the private automobile carries more passengers per day than the street car, motor bus and rapid transit train combined. In the Boston Metropolitan District there is an average of 1,280,000 vehicle trips per day and an average of 1.8 persons per vehicle. This gives a total of 450 vehicle rides per capita per year. For large cities other than those having rapid transit the number of rides per capita for all mass transportation facilities has steadily declined since 1920 and now ranges between 200 and 300. Boston, Philadelphia and Chicago with the aid of rapid transit have maintained the riding habit for mass transportation facilities at between 300 and 400 rides per capita.

It is true, however, that the motor vehicle in all the larger cities carries a relatively small proportion of the daily number of passengers moving to and from the central business district. In most of these cities only from 18% to 50% of the passengers entering the

central area are transported by motor vehicles. From 50% to 82% of this traffic is, therefore, provided by mass transportation facilities. The street car or rapid transit train serves this movement to and from the central district exceptionally well and much more economically in its use of street space than the private automobile. For cross-town travel and travel from one suburban center to another the fixed and expensive transit lines are in general not nearly as quick or convenient as the automobile. The more widely a city is spread out the less practical it is to provide quick and convenient mass transportation except along a few transit routes radiating from main centers. In all cities with the exception of New York the motor vehicle is the chief means of cross-town, inter-neighborhood and inter-sub-center transportation.

A complete traffic analysis and forecast is a difficult, tedious and fairly expensive undertaking. It should, however, be considered a necessary foundation for thoroughfare planning. The time and money devoted to it will be very small in relation to the results that will be achieved and the magnitude and importance of the problem in hand. It is no small responsibility that is involved in laying down a thoroughfare plan for a large city to guide development for a long term of years.

The traffic study furnishes the quantitative basis for thoroughfare planning. All planning problems must of course be studied qualitatively as well as quantitatively. But the most brilliantly conceived design will prove disappointing unless its parts are functionally adapted and proportioned to the kinds and amounts of service required of them.

In attempting a traffic forecast there is no thought that it can be anything more than a scientific appraisal of probability on the basis of past experience and present facts. It is a determination of what is most likely to happen and not a claim as to what will happen. Any estimate of traffic might be upset by a radical change in the art of urban transportation such as that produced, for example, by the introduction of the motor vehicle. Even as to this radical change, however, it should be remembered that it was many

years after the first automobile was operated before it produced a revolutionary change in traffic conditions. There will doubtless be radical changes in transportation methods in the future, but when they come their full effect will not be in evidence for a period of years. In so far as the place of the automobile in city transportation is concerned it appears very unlikely that any such changes will seriously affect the reliability of traffic estimates during the next fifteen or twenty years.

All traffic estimates should be conservatively made. They are intended for use in designing bridges, roadways and other structures where economy in initial capital outlay is of great importance. The design of a structure the life of which is comparatively short or which can be enlarged or paralleled without extraordinary cost in case it becomes inadequate, may properly be based on a very conservative estimate of traffic increase. On the other hand, the taking of land for highway purposes should be based on a most liberal estimate of traffic increase. The highway after being solidly improved with buildings will be so costly to widen that it should be laid out to take care of the maximum estimated traffic for a long term of years. A liberal percentage may well be added to the traffic forecasts where they are to be used to determine the amount of land to be taken for highway purposes. There are few public open spaces now existing that time and change have not put to good use even though the purpose for which they were originally set aside has long ceased.

DISCUSSION

ARTHUR C. COMEY, Cambridge, Mass.: The city of Meriden, Conn., tried another method for determining traffic flow. I believe that it is practical in smaller cities, and will give more accurate results. Meriden is the center of a very heavy through traffic; there is a large city about 18 miles to the north, and one of about the same size 18 miles to the south. There is a north to south and an east to west traffic street, which carry all of the through traffic. At each of the four gateways we posted two men; and four men also in the center, two for the west bound traffic and two for the

east bound traffic. These men took the registration numbers of every car for an entire day of twelve hours. Their total was well over 20,000 cars, and they had time enough to record a description of those cars which were not passenger cars, whether trucks or buses. We had an extra pair of men to relieve each successive regular pair at the luncheon period and again for a brief breathing spell at about 4.30 when the pressure was pretty heavy.

As we took the time at which each vehicle passed through the center and at each gateway, we recorded, of course, the number of vehicles which passed through Meriden without any stop at all. Obviously, these latter were the only ones which would be affected by a by-pass route. The count showed conclusively that through non-stop traffic in Meriden hardly adds three per cent to the total downtown traffic, and that even if a by-pass were to be built the downtown streets would be just as congested in three years as they are today. This is, of course, quite contrary to the usual notion that a by-pass greatly relieves the downtown traffic.

STREET REPLANNING IN DOWNTOWN DISTRICTS OF LARGE CITIES

HARLAND BARTHOLOMEW, City Plan Engineer, St. Louis, Missouri

The opening of a new street or the widening of an existing street was formerly a mammoth and novel undertaking. It disturbed the existing order of things. Such few proposals as were made were looked upon with considerable askance. A city might become large enough to support some form of rapid transit but even this was considered less bold than disturbance of the street arrangement and "vested rights" in property.

Boston, with its notoriously narrow crooked street system, is reputed to have spent more than \$40,000,000 before 1900 in straightening and widening streets. This was to be expected perhaps. It attracted little notice, however, since there were no single projects of unusual magnitude or of striking significance. Also before the close of the last century Marshall Field and his associates had widened State Street in Chicago to create a fine shopping thoroughfare, but this, too, was little known or discussed, for city planning was still unthought of.

Today the automobile has brought about changes of unusual character and magnitude. The street plan of a city or of its business district is no longer a thing of sanctity. If the plan is unsuited to demands of modern traffic, business may just pick up and move to a more suitable location, possibly close by or possibly out into the several residence centers. Here lie many dangers and perplexities. How far should a city go in reshaping its business district to modern needs? How shall the cost be met? Of many projects that may be proposed, how shall those of merit be sifted from those of doubtful value or those actually detrimental in character?

In the past decade many street opening and widening projects have been completed in the business district of cities both large and

small. Of these, probably the most notable and spectacular as well as among the most expensive are the great group of projects in Chicago—Michigan Avenue widening and extension north across the Chicago River, Wacker Drive, Roosevelt Road and Canal Street. Taken together, they form the great traffic loop originally projected in the well-known Burnham and Bennett Plan of Chicago. They constitute a definite conception of design that has fully justified itself. These four wide thoroughfares, if no longer constituting the boundaries of the business district, effectively serve their function as distributor streets for loop bound traffic and as by-pass routes for much additional traffic. The boldness of the original plan was neither sacrificed nor compromised in the execution thereof. Michigan Avenue, 141' wide, double-decked to avoid conflict with east-west trucking traffic between the loop on the west and freight houses to the east, was widened and extended for one mile at a cost of \$16,000,000. It accommodates approximately 60,000 vehicles per day and has created an entirely new business area where property values have increased \$100,000,000. Surely a good investment for the property owners and the city, particularly since property values have continued to rise albeit less rapidly in the older loop district! While absorbing much new growth, the Michigan Avenue improvement is nevertheless good insurance for property within the loop.

Wacker Drive, another double-decked street 135' wide, now promises equally spectacular financial success with greater benefit to loop property than was the Michigan Boulevard project.

To a less spectacular but nevertheless effective degree, Roosevelt Road, 118' wide, and Canal Street, 100' wide, have justified themselves in traffic accommodated and values created in proportion to their cost.

In New York there is no city plan by which to judge the effectiveness of street opening and widening projects. Numerous projects have been undertaken in Manhattan and in Brooklyn. Some of these, such as the extension of Seventh Avenue and the extension of Sixth Avenue, have been undertaken to correct evident

defects in the original street plan. The extension of Seventh Avenue and the widening of Varick Street from 65' to 100' cost \$8,220,000. The total length was 1.3 miles. The Sixth Avenue extension cost \$3,700,00 and was .6 of a mile in length. Six or seven million dollars per mile is a very large price to pay for improved local circulation facilities. The Seventh Avenue extension, on the other hand, appears to have justified itself from the standpoint of resuscitation of the immediate neighborhood, for according to figures contained in the report of the Regional Plan of New York and Environs, property in the immediate vicinity of the project increased 32.5% along Seventh Avenue and 27.5% along Varick Street, whereas property in this general locality had declined 21% in the period 1907-1923.

The DeLancy Street project in Manhattan and the Roebling-Taylor and Flatbush Avenue extension in Brooklyn were necessary approach thoroughfares to the Williamsburg and Manhattan bridges respectively. While interesting from the standpoint of cost, being \$4,500,000 to \$8,000,000 per mile, their justification appears to be more as integral parts of bridge construction than in creating increased property values in their vicinity.

The Livingston Avenue project in Brooklyn was one of the earliest and most interesting examples of city planning. Fulton Street, the only approach to the Brooklyn Bridge, became so clogged with street car traffic, and its roadway was so narrow that vehicular movement was almost impossible. Livingston Avenue, a 50-foot street one block away, was widened to 80 feet and so extended as to relieve Fulton Street of vehicular traffic, which it did most effectively. It was opened in 1910. It created substantial increases in property values although there were no special benefit assessments levied. Our former President, Mr. Nelson P. Lewis, called attention to the inequity of this method of financing public improvements by showing that speculators had purchased property a few months in advance of the opening of the street and had reaped for themselves much of the increased property values through re-sale shortly after completion of the project.

In Philadelphia the well-known Fairmount Parkway, one mile in length, and a varying width of 140 to 250 feet, has been opened at an approximate cost of \$19,000,000. Its conception was largely æsthetic in character, being intended as a monumental approach from the business district to the main entrance of Fairmount Park. Along its border were to be grouped the city's principal public and semi-public structures, with the Art Museum upon an eminence at the park entrance and at the end of the main axis of the parkway.

The Art Museum has been built, several of the semi-public structures have been erected, the parkway is proving to be a very useful vehicular approach to the business district and the ideas of those who conceived the plan are gradually being realized. It is one of the most expensive projects of its kind among American cities. Only a great city such as Philadelphia could successfully undertake such a project.

In St. Louis two projects of intimate relation to the central business district have been completed. The widening of Olive Street from 60 to 100 feet for a distance of 1.7 miles west of 12th Street at a cost of \$2,349,507, has created a new, much needed approach thoroughfare. To have carried it completely through the business district would have been financially prohibitive. While open to traffic less than one year, it has improved property values substantially and is helping to resuscitate the large blighted district between 12th Street and Grand Avenue.

One of the interesting considerations in the Olive Street widening was the fact that property on the south side of the street had a depth of only 109 feet, from which 40 feet were taken for the widening, leaving lots of only 69 feet in depth. This has been established as a normal business depth, consequential or severance damages being allowed to property owners only where lot depths are reduced to less than 70 feet. At the present time property values have increased from \$100 to \$500 per foot along the widened portion of this street. A 50-foot interior lot near the business district sold for \$80,000 before the widening, and for \$160,000 after the widening, although its final depth was but 69 feet. The net

increase in the value of this lot, taking into consideration both damage and benefit awards, amounts to about \$1,900 per front foot. The average assessment per front foot for an interior lot, including paving, was about \$120. One real estate operator estimates that all values along Olive Street have more than doubled as a result of the widening.

The widening of Franklin Avenue for a distance of five blocks (.32 mile) created a continuous 80-foot thoroughfare upon the north edge of the ultimate business district. Because of the narrowness of this short section of Franklin Avenue it had been used as a one-way thoroughfare. It now accommodates traffic in both directions, including an important transit line. This project consequently assists in carrying out a definite plan of transit routing and traffic movement which takes into account the needs of the present as well as the probable future business district. It is too early to judge of the increase in values resulting from this improvement.

These two St. Louis projects appear to have justified themselves, one as an improved outlet from the business district which has substantially improved property values; the other in making possible a natural and desirable expansion of the business district northward with improved vehicular and transit circulation facilities.

In Detroit three important street opening and widening projects have been undertaken in the business district, and several others are in process of completion. Cass Avenue has been widened from 60 to 80 feet for a distance of 2,000 feet along the west edge of the business district. It serves both as an improved inlet or exit and as a distributor street. It has greatly improved property values, the increases being estimated at from \$800 to \$3,250 per front foot.

The Vernor Highway, formerly High Street, is in effect a distributor street at the north edge of the business district. It was widened from 50 to 80 feet except in a short portion of the street which already had a width of 80 feet. Distributor streets generally

should have a width sufficient to carry at least 10 lines of vehicular traffic, i. e., 90-foot roadway. Apparently Detroit has realized this necessity, for a second proceeding is now under way to widen this Vernor Highway from its present width of 80 feet to a width of 150 feet. A fuller understanding of the reasons which led to this second proceeding immediately following the completion of the first widening would be most enlightening. Even the initial undertaking, however, resulted in considerable advances in property values, estimated at from \$100 to \$700 per foot.

The Madison Avenue widening, completed in 1925, was largely a matter of local circulation within the business district. This street was widened from 50 feet to 90 feet for a distance of 1,060 feet. The increase in property values is estimated at from \$250 to \$1,000 per foot. Each of these Detroit projects appears to have justified itself both as a matter of city planning design and from the standpoint of improved property values.

One of the earliest street widening projects undertaken in American cities was the widening of Robert Street in St. Paul. It was completed in 1913. An extension to University Avenue was completed in 1921. The original street width was 55 feet; the new street width is 75 feet. The length of the widening was 3,800 feet and the length of the extension 1,500 feet. The increase in property values is estimated at approximately 30%. This thoroughfare is an important thoroughfare of the business district and it is difficult to understand why property values have not increased more than they have. The widening was undertaken in connection with a new bridge across the Mississippi River. The entire cost was borne by abutting property owners.

The peculiar topographical conditions in Pittsburgh make a study of its business district unusually interesting and valuable. Hemmed in on two sides by rivers, which can only be crossed with expensive bridges, and on the third side by a hill of considerable size, the famous "Golden Triangle" has long been incapable of expansion. New entries or exits or by-pass thoroughfares are tremendously expensive to construct. In 1923 it was found that

18% of all the traffic entering the business districts was through traffic compelled to enter the business district for want of other means of circulation.

As a result of the excellent report by Mr. Olmsted on Pittsburgh's downtown thoroughfares in 1910, a valuable new entry to the business district was constructed along the Allegheny River side of the great hill immediately east of the business district. This was known as Bigelow Boulevard. In 1925 a similar project on the Monongahela River side of this hill was completed. This is known as the Boulevard of the Allies. Both of these approaches to the business district are approximately two miles in length and are side hill thoroughfares, having very little connection with intersecting streets. They are more or less high-speed non-stop thoroughfares, delivering large volumes of traffic at the edge of the business district. As an inlet for traffic from the Boulevard of the Allies, Second Avenue was widened from 40 to 80 feet throughout the business district. It serves much in the capacity of a distributor street, although of restricted width and somewhat out of position to be strictly classified as such. Property values have been greatly increased although no accurate record of them is available at this time. The widening of Second Avenue cost \$1,981,956.

Grant Street has been widened at a cost of \$1,697,068. Its original width was 60 feet and its new width is 80 feet. This is essentially the distributor street at the east edge of the business district. It probably should have been considerably wider although to some extent its function will be restricted when the great by-pass route is constructed comprised of the tunnel through the south side hills, the bridge across the Monongahela, a double-deck thoroughfare across the Triangle immediately east of Grant Street, and a bridge across the Allegheny River. It is too early to judge of the full traffic value of the Grant Street widening or of the improved property values resulting therefrom.

An exceedingly interesting set of street openings and widenings has been completed in the business district of Boston during the past ten years. Of these the Stuart Street opening and widening is

especially interesting. Its cost was \$3,100,000 for a distance of 4,000 feet or at the rate of slightly in excess of \$4,000,000 per mile. It was completed in 1919 and has served to open up a new district in which new property values in excess of \$23,000,000 have been created. This project was something in the nature of an approach thoroughfare for traffic from the northwest, having very restricted accommodation on Boylston Street, the only previously available approach thoroughfare. The Kneeland Street widening, costing \$1,670,000 or something over \$5,000,000 per mile, constituted an extension of the Stuart Street project across the business district to Atlantic Avenue and the South Station.

The Cambridge-Court Street widening from an original width of 40 and 50 feet to a uniform width of 100 feet, cost \$3,500,000. Its length was 3,400 feet. It furnishes a very much improved entry to the business district for a large volume of traffic entering via the Cambridge Bridge. While it has not enhanced property values to the same extent as other projects, it has probably justified itself from the standpoint of traffic accommodation and balancing of entries to the business district.

FUNCTION OF PROJECTS

In an accompanying table are shown numerous additional street opening and widening projects completed in the business district of Los Angeles, Minneapolis, Dallas, Memphis, Fort Worth, Omaha, Seattle and Des Moines. These projects as well as those previously described usually always serve definite functions such as:

1. Important approaches usually connecting with radial thoroughfares.
2. Distributor streets at the edge of the business district.
3. By-pass routes.
4. Improved local circulation facilities.

In some cases individual projects combine two or three of these functions.

The large number of projects and their great cost indicate that

consciously or unconsciously cities are striving to bring about more or less definite functional design of the street system of the business district and consequently bring about a logical traffic movement.

Where such large sums of money are involved, it is evident that thorough planning should precede initiation of projects in order that initial mistakes of improper width or location may be avoided.

PROPER DESIGN OF A BUSINESS DISTRICT

In order that there may be stable, sound and uniform distribution of property values, there should be a very definite conscious design of the business district. Considerations leading to the formation of such a design should include:

1. Determination of size of business district based upon ultimate population to be expected in the city.
2. Adequate number and distribution of radial approach thoroughfares insuring more or less uniform distribution of traffic.
3. Distributor streets of ten-line capacity at each edge of the business district.
4. By-pass thoroughfares immediately outside the boundaries of the business district.
5. Elimination of jogs or off-sets, and dead-end streets, and widening of narrow streets to improve local circulation facilities in so far as these things can be done within reasonable limits of cost.

RELATIVE COSTS OF STREET OPENING AND WIDENING PROJECTS

In the accompanying table of street opening and widening projects in various cities is shown the cost per mile of each. With the exception of the Boston projects and the one short project in Seattle, the greatest costs occur exclusively in cities of 1,000,000 population and over. In New York the projects cost, approximately, one at \$2,000,000 per mile, one at \$4,000,000 per mile, two

City	Project	Total cost	City's share	Per- cent	Original width	New width	Approx- imate length	When com- plete	Cost per mile	Increased valuation	Additional remarks
New York	Varick St., Ext. 7th Av.	\$8,220,000	{ 6% frontage 11% City Large 50% Boro. Man. 33% other Boro. }	94	65'	100'	6,864'	1918-19	\$6,300,000	32.5% 27.5%	{ Property in locality declined 21% 1907-23. Approach to Williamsburg Bridge. ..
	Delancy St.	3,924,635	\$2,616,424	66 2/3	..	150'	2,397'	1905	8,650,000	..	..
	Allen St.	1,876,000	1,407,000	75 Boro Manh.	50'	178'	1,478'	1928	6,700,000	..	..
	6th Av. Ext.	3,700,000	2,960,000	40 Manh. 40 City	..	100'	3,168'	1929	6,166,667	..	Under construction.
	Roebling-Taylor	722,243	{ 3% Locally 52% Brooklyn 20% Manh. 25% City }	97	80'	100'	1,478'	1914	2,600,000	..	Approach to Williamsburg Bridge. ..
Brooklyn	Flatbush Av. Ext.	3,000,000	3,000,000	100	0'	100'	3,538'	1909	4,450,000	..	Approach to Manhattan Bridge. ..
	Livingstone Av.	..	..	75	50'	80'	..	1905	..	..	..
	Michigan Av. Roosevelt Rd.	16,000,000 5,000,000*	8,000,000 ..	50 ..	66' 66'	141' 118'	5,280' 10,560'	1920 1925	16,000,000 2,500,000	..	{ Property owners voluntarily restricted types of business. 20' strip donated by R. R. K. K. assumed \$5,000,000 cost viaducts. Replaced Old Comm. Row.
	Canal St.	..	..	..	80'	100'	5,280'	1925	..	..	..
	Wacker Drive	22,000,000	13,000,000	60	80'	135'	5,280'	1926	22,000,000	Too early to judge	Monumental thoroughfare, City Hall to Fairmount Park. Most expensive project in America.
Philadelphia	Fairmount Parkway	19,000,000*	..	..	0'	140-250'	5,280'	..	19,000,000	\$346,000,000	..
	Cass (Grand River to Michigan)	815,224	271,741	33 1/3	60'	80'	1,000'	1923	4,304,382	\$800 to \$3,250 per foot	..
	Cass (Michigan to Fort)	1,254,895	414,632	33 1/3	60'	80'	1,000'	1926	6,625,845	\$1,000 to \$1,400 per foot	..
	Vernor Highway	4,600,000	2,300,000	50	50'	80'	..	1925	..	\$100 to \$700 per foot	New ordinance increases width to 150'.
	Madison Av.	774,498	238,166	33 1/3	50'	90'	1,060'	1925	3,847,775	\$250 to \$1,000 per foot	Assessments confirmed. Im- provements not started. Assessments not confirmed.
Los Angeles	Olive St., 7th to Pico	1,731,670	..	..	80'	90'	..	..	..	..	..
	Pico to Hill	1,762,905	..	..	0'	80'	..	..	..	..	..
	Flower St. Ext.	1,835,747	..	..	80'	90'	..	..	..	..	..
	5th St. Ext.	309,489	1,740	00 1/2	0'	60'	7,920'	1924	206,326	..	..

St. Louis	Olive St.	2,349,507	492,377	20.9	60'	100'	9,029'	1928	1,373,900	\$300 to \$400 per foot average. \$2,000 per ft. in business district	..
Boston	Franklin Av.	504,201	19,713	3.9	50.60'	80'	1,690'	1928	1,575,630	Too early to judge	..
	Stuart St.	3,100,000	730,000	23	0'	70-80'	4,000'	1919	4,092,000	Too early to judge	..
	Cambridge--Court St.	3,500,000	2,475,000	71	40.50'	100'	3,400'	1922	5,435,500	865,000	Increase in assessed value only.
	Province St.	1,126,114	300,000	27	14'	50'	390'	1922	15,247,582	2,302,100	Increase in assessed value only.
	Tremont St.	1,450,000	1,185,000	81	60'	80'	1,700'	1923	4,503,700	4,548,060	Increase in assessed value only.
Pittsburgh	Kneeland St.	1,670,000	1,119,000	70	40.60'	80'	1,700'	1923	5,186,020	1,551,600	Increase in assessed value only.
	Nashua St.	1,000,000	340,000	34	40.60'	92'	720'	1926	7,334,700	5,886,900	Increase in assessed value only.
	Second Ave.	1,981,956	2,664,769	78	40'	80'	2,180'	1921	4,796,233	..	..
	Bivd. of Allies	2,664,769	..	100	0'	60'	11,526'	1922	1,221,810	..	..
	Grant St.	1,697,068	..	88	60'	60'	3,648'	1928	2,455,950	Too early to judge	..
Minneapolis	10th St.	257,000	286,667	33½	60'	70'	1,270'	1927	1,068,249	..	..
Seattle	Grant Av.	860,000	..	..	60'	90-150'	4,300'	1928	1,056,080	..	..
	Second Ave.	1,250,000	..	0	0'	90'	1,025'	1929	..	..	Entire expense by property owners
St. Paul	Robert St.	1,043,000	..	..	55'	75'	3,800'	1913	1,448,727	Voluntarily undertaken by property owners all cost.	..
Dallas	Robert St. Ext.	260,000	..	..	0'	75'	1,500'	1921	913,380	..	..
	Harwood St.	477,375	113,917	23.8	45'	60-66'	1,060'	1924	2,393,805	..	..
	Alard St.	128,029	22,371	17.4	50'	70'	390'	1925	1,733,512	..	..
	St. Paul	313,405	4,432	1.3	..	50'	980'	1923	1,688,313	Extension	..
	2nd St.	283,500	120,000	42.4	40'	66'	2,640'	1924	567,000	400 to 500%	..
Memphis	3rd St.	133,000	75,000	56.4	45'	66'	2,640'	1923	266,000	400 to 500%	..
	Union Av.	270,000	90,000	33½	50.66'	80'	4,000'	1923	356,400	500 to 500%	..
Ft. Worth	West 7th St.	84,000	24,000	28.5	60'	80'	3,800'	1926	116,676	\$175 to \$850 per foot	Land donated by property owners. City paid building set-back and paving costs, all but two owners cooperated. One parcel condemned — other as yet not acquired. Traverses colored section which hampers increase in value. Voluntarily undertaken by property owners.
Des Moines	Keosauqua Way	742,519	..	..	..	110'	..	..	..	25%	..
Omaha	Grand Av.	..	..	..	66'	80'	6,600'	..	..	..	..
	20th St.	799,130	71,921	9%	60'	80-100'	2,587'	1928	1,635,216	Too early to judge.	..
San Francisco	17th St.	288,019	72,004	25%	30'	60'	..	1923	..	240-500%	..
	15th St.	357,973	87,150	24.7%	..	60'	..	1924	..	80-380%	..

* Approximate estimate

at \$6,000,000 per mile, and one at \$8,000,000 per mile. In Chicago one project cost something over \$2,000,000 per mile; another \$16,000,000 per mile, and another \$22,000,000 per mile. The one project in Philadelphia cost approximately \$19,000,000 per mile. In Detroit the three projects now completed approximate \$3,000,000, \$4,000,000 and \$6,000,000 per mile.

Generally speaking, projects in cities in the 250,000 to 1,000,000 class appear to be quite uniformly in the vicinity of \$1,000,000 per mile, with the notable exception of Boston and Seattle previously mentioned. It should also be observed, however, that Pittsburgh has one project costing something over \$1,000,000 per mile, another \$2,000,000 per mile and another \$4,000,000 per mile.

It is interesting to note that both St. Paul and Dallas, cities having populations near the 250,000 mark, have undertaken projects that cost about \$1,000,000 per mile each.

In Memphis and Fort Worth, cities of somewhat less than 250,000 population, projects range in cost from \$100,000 to \$500,000 per mile.

The obvious deduction from these figures is simply that it pays to plan early.

The exception noted in the case of Boston, where costs vary from \$4,000,000 to \$15,000,000 per mile, is obviously attributable to the unusually bad design and narrowness of the original street system, supplemented by the greater age of the city which has brought about much more intensive and consequently costly building than is found in other cities of similar size. Boston is also the center of a large metropolitan district which would naturally classify it, for present purposes, in the group of cities having more than 1,000,000 population.

HOW MUCH OF THE COST SHOULD THE CITY PAY?

The manner in which costs are distributed varies greatly in different cities. In New York the city and borough governments have assumed an unusually large proportion of total costs. In the Michigan Avenue and Wacker Drive projects in Chicago the

city paid respectively 50 and 60 per cent of the total cost. In Detroit the city paid 33% of the total cost of the Cass Avenue and Madison projects, and 50% of the Vernor Highway. These appear to be more or less arbitrary methods of determining cost distribution. Elsewhere cities appear to have studied somewhat more carefully the probable increase in property values and to have attempted to recover a fairly large share of the cost from the very evident increment in value that usually accrues to private property as a result of these street opening and widening projects. This is interestingly illustrated by the following figures showing the city's share of cost for individual projects in various cities: St. Louis 20.9%, 3.9%; Boston 23%, 27%, 34%, 70%, 71%, 81%; Dallas 1.03%, 17.4%, 23.8%.

The pressure of traffic congestion is such that endless numbers of projects could be undertaken and endless sums of money spent. Most cities could soon exhaust their entire bonding power paying for street opening and widening projects. Every city must recognize that the amount of money it can spend for this purpose is decidedly limited. It consequently behooves each city to study most carefully its major street plan and the particular design most suited to the satisfactory development of its business district; thereafter to choose most carefully the projects that are most necessary in order that they may be given precedence in execution; and furthermore, that most careful consideration be given to cost distribution in each individual case, assessing so much of the total cost as can reasonably be collected from benefited property.

The very interesting figures heretofore cited and shown in the accompanying table, giving increased property values in various cities, show that usually the street opening and widening projects pay large dividends in improved and enhanced property values. In many states there are arbitrary legal impediments to proper distribution of cost, as for instance, the constitutional provision of the state of Ohio compelling a city to assume not less than 50% of the total cost of any individual project. Limitations of this character practically forestall the ability of any city to execute a

properly designed street plan. This subject was more fully discussed in a previous paper by the present speaker at our Los Angeles meeting in 1924.

The city of St. Louis is carrying out a considerable number of street openings and widenings in various parts of the city. The major street plan is enforced without cost in newly developed territory where subdividers are compelled to observe the width and alignment of major streets in their plats. This is now done in very nearly all cities. In some cases property owners have united to assume the entire cost of widening a street as was also done in the Robert Street project in St. Paul, the Second Avenue extension in Seattle, the Grand Avenue widening in Des Moines, Iowa. In the majority of cases in St. Louis, however, it has been necessary to resort to condemnation proceedings. Provisions of the City Charter are quite simple. After there has been final determination of damage, independent consideration of benefit is undertaken regardless of whether this benefit may accrue upon the frontage widened or opened, or upon a district of varying size at either end or upon either side of the project; and also with complete disregard of damage awards that may have been made. If benefits equal to but not exceeding the cost of the project can be found, there is 100% assessment thereof. If there is less total benefit than the total amount of the damage, the city assumes this difference in cost. The following table shows a number of projects that have been carried out in the past few years, with varying percentage of cost paid by the city but averaging only about 12.8% as the city's share.

In addition to the rule that so much of the cost as is possible be recovered by special assessment is another of equal importance, i. e., that the city should pay no portion of the cost of any project that is not definitely a part of the major street plan and as such fulfilling a very important function in the general city plan. All such projects should be financed exclusively by local interests and the city should only approve such of these projects as promote good local circulation and do not interfere with the major street plan.

DISTRIBUTION OF COST OF STREET OPENING AND WIDENING
PROJECTS IN SAINT LOUIS

Project	Location	Total cost	City's share	Per cent city's share
Compton-Chouteau.....	Cut-off.....	\$13,807.63	\$3,686.11	27
Easton.....	Franklin to Prairie.....	529,394.00	121,234.75	22.9
Franklin.....	3rd to 9th.....	504,201.00	19,713.30	3.9
Grand-Carter.....	Cut-off.....	dedicated in 1924		
Kingshighway S. W.....	Wilmington to Gravois.....	24,077.95	3,678.85	15.2
Newstead-Easton.....	Cut-off.....	34,853.48	2,728.11	7.8
Newstead-McPherson.....	Cut-off.....	5,355.75	nothing	0
N. Market-Garrison.....	Cut-off.....	1,386.00	nothing	0
Pine-Lawton.....	Cut-off.....	129,041.65	18,656.51	14.4
Salisbury-Farrar.....	Conn. McKinley.	21,648.00	12,565.25	58
Vandeventer.....	Chouteau to Hunt.....	88,154.00	1,397.65	1.6
Vandeventer.....	Chouteau to Market.....	240,325.55	21,802.06	9.1
Vandeventer.....	Easton Cut-off..	9,909.60	nothing	0
		\$1,601,954.61	\$205,462.59	12.8

HOW LARGE SHOULD A BUSINESS DISTRICT BE?

The following table gives the total number of front feet of commercial frontage per 100 persons in certain cities, also the total commercial frontage per 100 persons found in the central business district, as determined by the Major Street Plan. These figures are the result of computations and measurement at the time of the preparation of zoning ordinances.

City	Population	Total com'l frontage per 100 persons in the city	Com'l frontage per 100 persons in central business districts	Per cent of business to total
Knoxville, Tennessee....	102,000	51.3 lin. ft.	18.2 lin. ft.	36
San Angelo, Texas.....	25,000	42.8 " "	24.7 " "	58
Cape Girardeau, Mo.....	16,500	47.5 " "	31.8 " "	67
San Jose, Cal.....	66,607	77.2 " "	31.2 " "	40
New Orleans, La.....	387,219	42.73 " "	No estimate	..
Vancouver, B. C.....	143,560	71.3 " "	34.2 " "	48
Sacramento, Cal.....	105,000	63.2 " "	33.1 " "	52
Average.....	..	56.6 lin. ft.	28.8 lin. ft.	50

These figures show that we should study conditions in each city rather than accept too readily arbitrary rules or theoretical assumptions. If one city has a total of 42 feet of commercial frontage per 100 persons and another city has 77 feet there are obvious differences in character and conditions that must be recognized in ultimate design. The widely quoted figure of 50 feet of commercial frontage per 100 persons is not a safe figure, even though it may be a fair average of a number of cities.

It is interesting to note that the amount of commercial frontage in the central business district constitutes about one-half of the total commercial frontage of the entire city, although this is an average figure and not an inflexible rule. In a general way this table demonstrates that approximately one-half of the commercial frontage of a city is to be found or provided for in the central business district and the remainder distributed about the city in varying amounts according to local conditions.

If there are 60 feet of commerce per 100 persons then the design of the business district should be such as to anticipate 30 feet of commerce per 100 persons of ultimate population. If there is less than 50% of total commerce in the business district today, as in Knoxville (see table) it is fairly good proof that the business district is inaccessible or otherwise incapable of accommodating an adequate amount of commerce as is the very evident fact in Knoxville. It is also a logical deduction that street opening and widening projects of some magnitude will probably be justified. Knoxville is now completing an entirely new vehicle entry to its business district, 100 feet wide, based upon the principles above expressed.

It is too early to arrive at too definite conclusions with respect to questions of this character at least until there has been opportunity for much more thorough research. Investigations of this character are expensive to make and demonstrate the need for much further study.

In order to approach this question of the proper size of business districts from quite a different angle, there have been assembled maps of the assessed valuations of property in the business districts

of all but one or two of the largest cities. By using the ratio of assessment effective in each city, as determined by the United States Bureau of the Census (1925), the area of property having a supposedly real value of \$1,000 per front foot and over was arrived at. The following table gives a list of the cities studied, the total population as of July 1, 1925, the ratio of assessments and the total gross area of the business district having a value of \$1,000 or more per front foot. This table also shows the percentage of the area devoted to streets and alleys, net area excluding streets and alleys, square feet per 100 persons, and approximate number of front feet per 100 persons.

It is recognized that the method of estimating here used is susceptible of a considerable degree of error. On the other hand it is believed that the column of figures showing the square feet of commercial area per 100 persons is a reasonably close approximation of the actual conditions to be found in these various cities. From this column of figures it will be seen that the average number of square feet per 100 persons is 1,265. The minimum figure is that of Cleveland, being 431 square feet per 100 persons, and the maximum figure that of Minneapolis, 2,760 square feet per 100 persons, a variation of 640%. On the other hand, there are only two cities having more than 1,935 square feet per 100 persons and only two cities having less than 625 square feet per 100 persons. In other words, most of these cities show a variation of no more than 300% in the amount of property having a valuation of \$1,000 or more per front foot. A very considerable number of them show less than a 50% variation from the average of 1,265 square feet per 100 persons. Likewise, there is only a 50% variation from the average number of front feet per 100 persons in all but four cities.

Various deductions might be drawn from this table. Recognizing the necessity for more accurate information and further study, it is herewith offered merely as an interesting preliminary to further research in this field as time and funds and opportunity permit.

City	Population as of July 1, 1925. Estimates by U. S. Census Bureau	Ratio of assess- ment	Total area business dis- trict having value of \$1000 or more per front foot	Gross area— square miles, including streets	Per cent— streets	Net area excluding streets	Square feet per 100 per- sons (net)	Assumed lot depth	Approxi- mate num- ber front feet per 100 persons
									Calculated
Chicago.....	2,995,239	35.0	53,000,000	1.91	29.0	37,630,000	1254	160	7.84
Detroit.....	1,218,089	100.0	14,390,000	0.52	29.5	10,144,950	833	100	8.30
Los Angeles.....	1,000,000†	50.0	24,340,000	0.88	21.5	19,106,900	1910	160	11.90
Cleveland.....	936,485	100.0	6,810,000	0.25	39.5	4,030,050	431	150	2.80
St. Louis.....	814,909	70.0	9,680,000	0.35	37.0	6,098,400	748	140	5.30
Baltimore†.....	796,296	85.0	7,320,000	0.26	44.5	4,060,050	510	140	3.90
Pittsburgh.....	631,563	85.0	12,310,000	0.44	34.5	8,063,050	1278	110	11.60
San Francisco.....	552,907	50.0	12,600,000	0.45	34.5	8,253,000	1493	135	11.10
Buffalo*.....	535,610	75.0	6,340,000	0.23	46.4	3,399,500	635	125	5.10
Milwaukee*.....	509,192	70.0	7,321,250	0.28	37.4	4,584,850	900	150	6.00
Washington.....	492,421	100.0	17,000,000	0.61	44.0	9,520,000	1935	140	13.80
New Orleans*.....	414,493	85.0	3,680,000	0.13	29.9	2,581,250	624	120	5.20
Minneapolis.....	425,435	40.0	16,890,000	0.61	30.5	11,738,500	2760	164	16.80
Cincinnati*.....	409,333	100.0	6,920,000	0.25	33.7	4,582,250	1120	100	11.20
Kansas City*.....	361,934	75.0	4,410,000	0.16	27.5	3,199,200	884	100	8.80
Dallas*.....	189,724	45.0	6,690,000	0.24	22.8	5,163,700	2720	100	27.20
Memphis.....	174,533	92.0	4,680,000	0.17	30.0	3,276,000	1875	148.5	12.60
Ft. Worth*.....	152,651	55.0	1,740,000	0.06	44.5	965,000	632	100	6.30
Knoxville.....	94,639	100.0	1,850,000	0.07	23.7	1,411,550	1491	160	9.30

* Estimate of street area from scaled dimensions.

† Includes streets and alleys.

‡ Arbitrary estimate.

Average
1265

Aver.
131.7

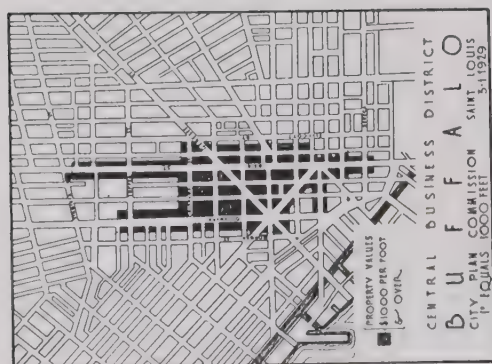
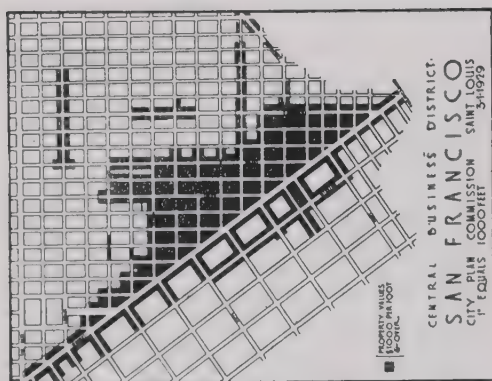
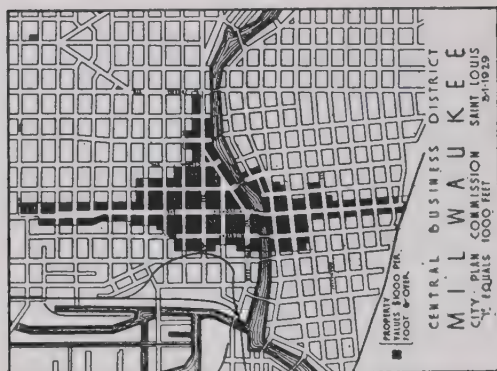
Average
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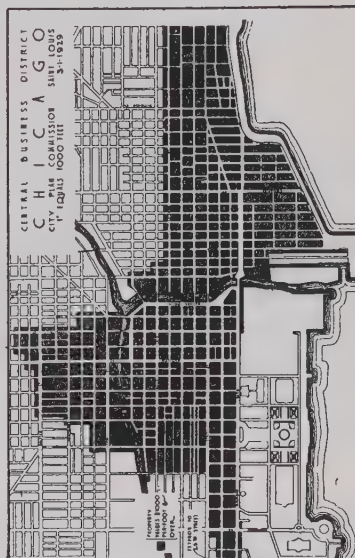
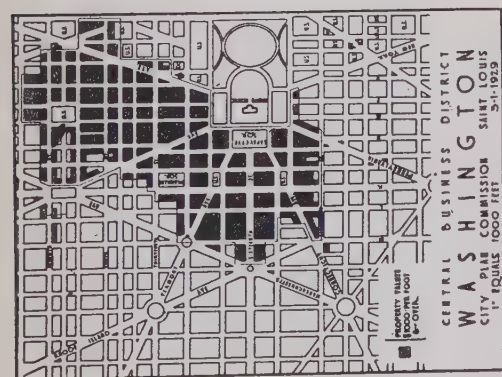
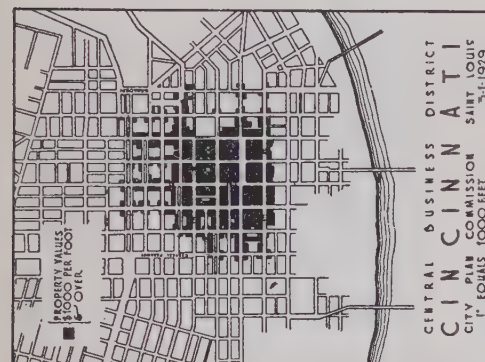
A set of maps, showing the business district of each city as determined by the \$1,000 per front foot value, was made on a scale of 1 inch equals 1000'. These are shown on the accompanying diagrams. Figures shown in the preceding table were scaled from these maps. In the smaller cities can be seen the well-known tendency of commerce to develop along a single main street. As the cities increase in size, this first has a tendency to string outward, then to develop along parallel streets, and as the city approaches the 500,000 population mark the district begins to round out unless there are physical barriers or unusually difficult street arrangements as, for instance, in the case of San Francisco.

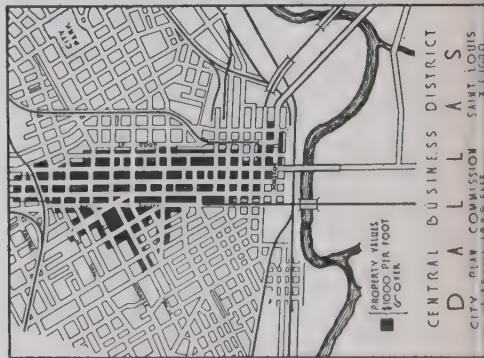
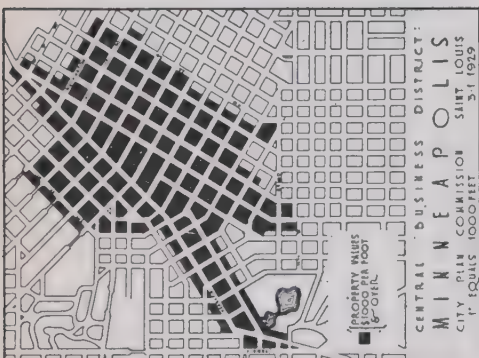
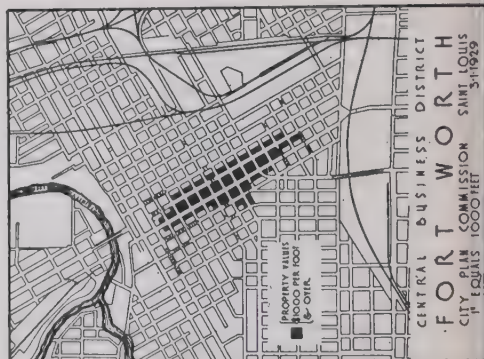
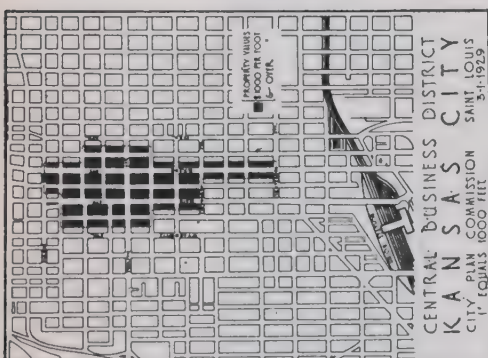
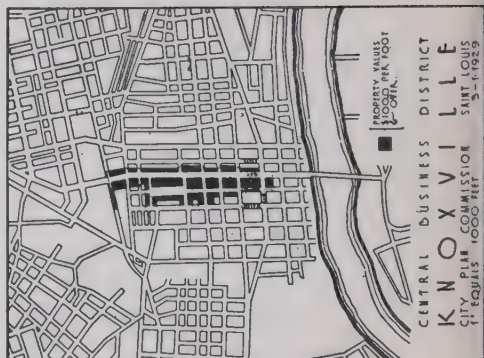
Numerous deductions might be made from this series of diagrams but time will not here permit. Perhaps the most significant thing that they show is the tendency toward uniformity in shape as the city increases in size—a tendency which should be recognized and encouraged by our city plans. This uniformity is the evident natural functioning of physical and economic forces of which we may be conscious but of which we have no full understanding. This study leads to the belief that the central downtown business district fills an important function in city life which must be more thoroughly studied, understood and planned for rather than to accept too quickly a theory of decentralization that assumes this downtown business district will not increase in size, in value and in importance to the community or that it may be entirely supplanted by outlying business centers.

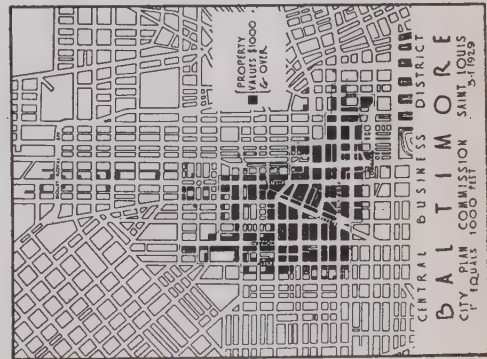
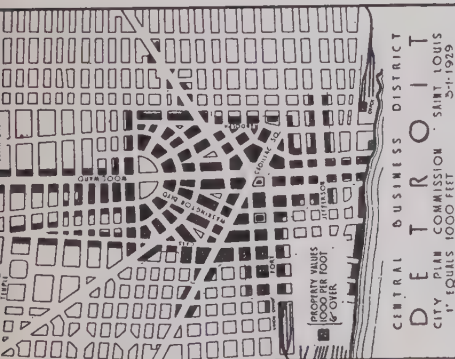
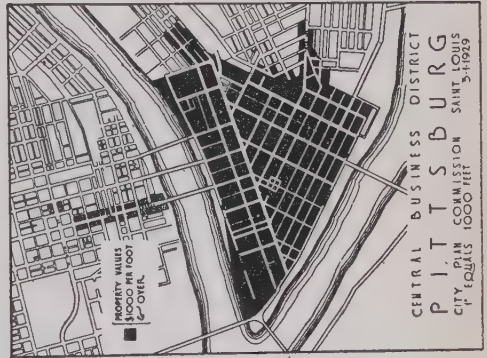
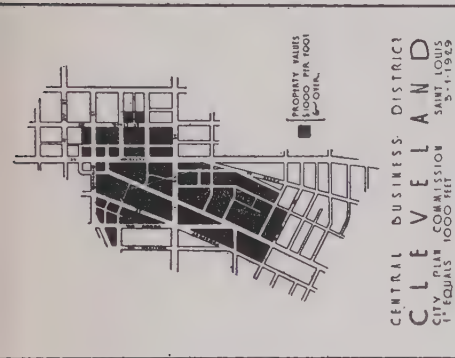
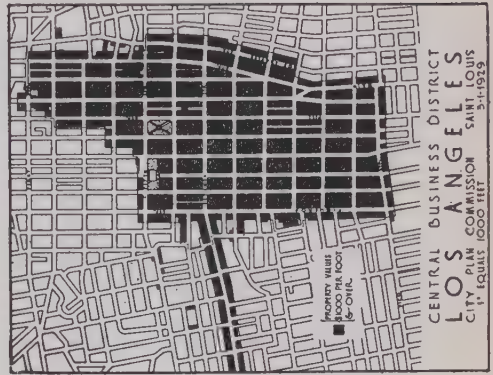
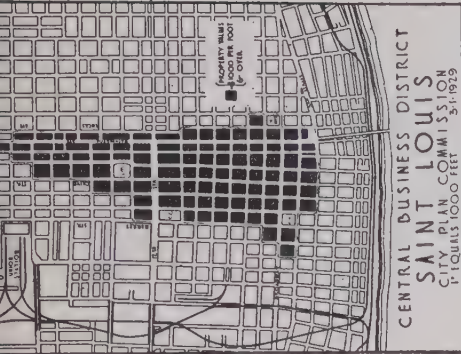
ACKNOWLEDGMENTS

A large number of persons have kindly contributed information of various kinds, shown in the tables and maps accompanying this paper. The information as to street opening and widening projects and of assessed values of property in the central business district has been contributed by the following persons: Eugene S. Taylor, Chicago; Walter H. Blucher, Detroit; David R. Faries, Los Angeles; Mayo Fesler, Cleveland; Jefferson C. Grinnalds, Baltimore; U. N. Arthur, Pittsburgh; T. S. Matson and I. S.









Shattuck, San Francisco; Harry J. March, Buffalo; Chas. B. Bennett, Milwaukee; Major Carey H. Brown, Washington, D. C.; J. M. Walker, New Orleans; A. C. Godward and H. E. Olson, Minneapolis; Myron D. Downs, Cincinnati; Chas. E. Donnelly, Kansas City; E. A. Wood, Dallas; W. B. Fowler, Memphis; L. W. Hoelscher, Fort Worth; Miss Elizabeth M. Herlihy, Boston; H. W. Alexander, Knoxville; Chas. H. Alden, Seattle; Andrew Wright Crawford, Philadelphia; Harold M. Lewis, New York; and Irenaeus Shuler, Omaha.

Special acknowledgment for numerous computations is due Mr. Don H. Morgan, engineer on the staff of the City Plan Commission of St. Louis, and John G. Marr of the writer's office.

DISCUSSION

JOHN D. ELLIS, Cincinnati, Ohio: One of the most striking features of Mr. Bartholomew's wonderful paper was the enormous cost of street opening and widening processes, costs that make such projects practically prohibitive to any great extent or to the extent probably that street openings and widenings are really necessary in the older cities.

Very briefly I shall try to describe to you one solution that the City of Cincinnati is now attempting to work out. About 1912 people got greatly exercised about excess condemnation. States began to pass statutes. The State of Ohio in particular passed a constitutional amendment granting to municipalities this right. That had happened once before in the United States, about the year 1848 in New York, when the State of New York passed an initial act for excess condemnation in street widening projects. However, the decision of the Albany street case by the Supreme Court of New York knocked excess condemnation out for a long period of time. That was followed by numerous state decisions again holding unconstitutional these statutes.

It was not until about the year 1902 that there was a reviving of this thought as a possible method for street widening. Briefly speaking, excess condemnation means that if you are widening a street you will take so many feet needed to be occupied by the actual street itself, and then you will take in addition to that enough land to constitute according to the Constitution of New

York, at least suitable building sites in order that after the street has been widened the municipality may retain control of the abutting property.

The Constitution of the State of Ohio grants to municipalities that similar right, and in the widening of what we know as East Fifth Street a portion of a great project for a highway boulevard running to the eastern section of our city, we have attempted to widen the street 25 feet, and then rather roughly to take in addition to the 25 feet 100 feet immediately to the south and adjacent thereto. The Constitution further provides that after the street is built, the surplus or excess property may be resold by the municipality.

There are obviously three purposes for which this may be done. The first is involved in the so-called remnant theory of the street widening, and to my mind at least, is rarely or not at all the application of principles of excess condemnation. That seems to be the limit of excess condemnation as used in the City of New York very greatly.

In the City of Rochester, however, there have been a number of cases of real excess condemnation. The Rock Street opening, University Avenue extension, and four other projects that I recall in the outlying district; but they have not as yet attempted excess condemnation in the downtown high property value district.

The Cincinnati project, therefore, represents the first concrete case where excess condemnation is attempted in the heart of a city. Property values where we are condemning run from \$2,500 to \$4,000 per front foot, depending on their proximity to what we call Government Square. We have confined ourselves to the abutting lots, that is, to say, we have gone back in our surplus only to existing lines, and there we have met three interesting features.

The first case is one where we cut right straight through a series of buildings that abut on the old streets, that is to say, if we confine ourselves to the 25 foot taking, we will completely destroy every building on the south side of this street for a distance of approximately five squares. Under our Ohio law of eminent domain, the city at the election of the property owners will be compelled to pay 100 per cent of the value of the structures in addition to damages to residue for the land value. It has been estimated that on that basis the project will run to approximately \$3,000,000 if we take

only the 25 foot strip. We have, therefore, taken all of those buildings.

The second situation is where we cut across a vacant lot leaving possibly a suitable building site. We take in addition to the 25 feet an excess of approximately 875 feet by 200 feet in that vacant property.

The third situation is where at one point of a corner we have gone down and taken three additional pieces of property which do not abut upon either the old street or upon the new street as improved.

In 1917 Professor Cushman in his book on excess condemnation frankly laid down the warning that it was not sufficient to regard constitutional provisions, that is, state constitutional provisions as sufficient; that there would some day arise the question as to whether or not the state constitutional provision providing for excess condemnation did not violate the due process laws of the Federal Constitution.

That is the point at which Cincinnati is today, for three suits have been filed in the Federal Courts upon these three typical cases that I have outlined to you, urging upon the court that the constitutional provision of the State of Ohio violates the Constitution of the United States, and therefore, that we do not have the right of excess condemnation. So far as counsel in the case have been able to discover, this is the first time that the constitutionality of excess condemnation has ever come before Federal courts.

We believe that so far as Ohio is concerned, if excess condemnation is unconstitutional we had better know it; if it is constitutional we want to know it.

It is difficult to get public bodies to realize that the fundamental purpose and the principal purpose of excess condemnation is not financial. Of course, the thought is that through a resale of the excess there may be a recapture of the unearned income and a possible recoupment of the total cost of the improvement. But if you will study the American, and particularly the English and French experience on the resale value of these properties, you will find that it would be a bold man that would say that it will necessarily be a fortunate financial experiment for a municipality to go into in every case. In other words, just as has been pointed out by Mr. Bartholomew, you can't just say that a street should be widened, or that a street should be opened haphazardly, nor can you say that excess condemnation will bring even fortunate

financial results in any particular case. It should and must be preceded by a long real estate investigation and as sound a prediction of the increase in value made as can possibly be made.

But to my mind, the most important thing that we can get by excess condemnation would have been illustrated on the screen had Mr. Bartholomew shown you another section of the central parkway of Cincinnati. I was quite proud of the beautiful section that he showed, but had he gone farther to the north he would have found that we had spent approximately \$3,000,000 in opening up a wide thoroughfare where once there was an old, filthy canal. But we have left upon that thoroughfare a long series of broken tenement houses where we went through with our condemnation, cut the buildings in half, paid damages to residue, and then left it to the change of development or to the whim of the property owner as to whether or not appropriate buildings and appropriate sites would develop along that boulevard. Frankly, they have not. That is true in practically every case of street openings as we saw from the illustration. There are certain results you can get by title and resale under restrictions that you cannot get by using zoning ordinances, cannot get by a mere exercise of the police power. It seems to me that that is ultimately the principal purpose of excess condemnation, and if sustained on constitutional ground, it will be for that purpose. This is what we call in Ohio "the protection of the improvement."

Just a word about the constitutionality of excess condemnation. Eight states of the Union now have constitutional provisions covering excess condemnation. A few months ago the city of Chicago, apparently by referendum, voted for itself this power. The attack on it is under the due process of law clause. I shall not attempt to burden you with a discussion of the legal technicalities of due process; enough to say that in operating under eminent domain, just as under the police power, the law can do no more than to reflect the economical and social thought of the time in which it is interpreted.

In 1848 it was generally conceded in the Supreme Court that a man who owned a grist mill might in operating under a state statute exercise the power of eminent domain, in order to run his grist mill. Now, there was no reason for that at all except that in the economic situation of 1848 grist mills were practically public utilities, that is, they were of such prime, vital necessity that the

state allowed private individuals to exercise eminent domain for the purposes of grinding corn and wheat.

It was equally true in 1848 that when propositions were made to state courts that eminent domain should be used for park purposes, they were thrown out, because that was beyond the proper function of the state, and it was not until 1861, in the Shoemaker Case, that the Supreme Court after great struggle finally decided that eminent domain might be exercised for the development of a park.

Now translate that into 1929. If anybody came before a court today saying that he operated under a statute authorizing the owner of a grist mill to exercise the power of eminent domain, he wouldn't last five minutes before any of our courts. On the other hand, if he went into any court in the country and sought to sustain a law providing for eminent domain for park purposes, there is no argument. The law has simply changed because the social and economic needs and consciousness of society has changed. It would have been utterly impossible fifty years ago to have gotten the Supreme Court to decide you can zone buildings as an exercise of police power. Today zoning has been established simply because the social needs of the community have expanded.

Now I think we are at the point where we will be capable of showing such a clear public use in the exercise of this so-called excess condemnation which incidentally is a very bad name for it, that within the existing laws of eminent domain and within the decided cases, we can establish the constitutionality of this provision, and if we do, a great measure of relief will be given to municipalities, not only upon the financial side, but from the point of view of allowing the district to be improved by your street widening or opening to develop in conformity with the purpose for which the widening or opening was made.

ADDRESS AT THE CIVIC LUNCHEON

RUSSELL WILSON, Editor, Cincinnati Times-Star

This talk of mine, coming as it does, both after and before the papers by experienced city planners, might be called a "strange interlude." But since I am the editor of a newspaper and come into contact with political forces which oppose city planning as well as advocate it, and since I have lived in a city which has benefited by city planning, I may have what is often called a "message" for you.

We are living in times that exert strange pressures. The pressure of yesterday is so severe, is so insistent upon us, driving us into tomorrow, that we hardly have time to pause today to take our bearings and to assay what has been accomplished. We have created great machines. It is an era unexampled in the history of the world. But those machines drive us quite as much as we drive them. Often we wonder, when we do take time to pause, whether we are accomplishing quite as much as we seem to be accomplishing according to the ballyhoo of newspapers, and of speakers and others who attempt to estimate what progress we are making.

I am a great admirer of the Victorian Age, an age which has come in for derisive comment from the critics of yesterday. Yet, if we survey fiction truly, we do not find that Wells and Galsworthy are comparable to Dickens and Thackeray. If we read free verse we find nothing to be compared with the philosophy of Browning and the cadences of Tennyson. History, too, has gone through changes. When Macaulay and Gibbon ceased to be read, we went in for original research, and history, to be authentic, had to be dull. Now we have gone in for the flippant kind of history. On the jackets of biographies of great men we usually find this

inscription—"This biography is as interesting as a novel." Well, I have read some of them. They are as interesting, and quite as much based on fact! Not long ago I read Strachey's "Elizabeth and Essex." I could hardly stop until I finished it, but when I was through I wondered whether the title should not have been "Elizabeth and Essex appeal!"

It is easy, however, to criticize the present. We are so close to it that we cannot see the woods for the trees, or, shall I say, the boulevards for the automobiles! But we are accomplishing great things and very largely because of the pressure of population. We have had to create a new order of efficiency. Heretofore our wars have given us invariably men who exercised great martial appeal. The Revolutionary War gave us George Washington. The War of 1812 gave us Andrew Jackson, the hero of New Orleans. The Mexican War gave us Zachary Taylor. The Civil War gave us U. S. Grant. The Spanish-American War gave us that great citizen of New York, Theodore Roosevelt. All of these martial heroes became Presidents. Then came the greatest war of all, and we turned to the hero of that war for a President, but not this time to a martial figure. We turned to a man whose efficiency had been displayed in matters of organization, and for the other candidate, to a great citizen of New York who had shown his efficiency in administration. Either of these men would have made a great President according to the new ideals of the American people. We did not elect Mr. Hoover because he had been reared on the Iowa plains, nor did the Democratic Party nominate Governor Smith because he had risen from the sidewalks of New York. They both met, in an extraordinary degree, the requirements of efficiency which now dominates the minds of the American people.

There was a philosopher, named Malthus, who, as you all know, reasoned out satisfactorily to himself and his contemporaries that at the present rate of population increase subsistence would not be equal to demands within a hundred years. Well, he could not foresee new methods of production and the new methods of transportation. Today the ingenuity of our inventors, the initiative

of our capitalists, and the cooperation of our laboring classes have quite overthrown his theory.

But another question of population has arisen which the city planners must meet, that is, the question of organizing city growth so that they may not only realize all the utility possible, but also that glorious incident of utility, beauty. Great cities exist today such as never were dreamed of by people of the past. Athens, which handed down to us many of our noblest traditions of democracy, was smaller than Scranton, Pennsylvania, and her population consisted partly of slaves. The requirement that we organize our urban life is almost entirely new, and that is why the principles of city planning were born. There was a time when city planning was regarded only as idealism with no practical value. That time is happily gone, for population itself has furnished an insuperable argument against it. We have built our cities without any idea of the efficacy of sunlight. We have made our streets canyons of darkness. We are like a famous baking firm which found that by making their bread absolutely white and appealing to the eye, they were subtracting from it a vitamin essential to the health of the consumer. Still, they kept on baking the bread as white as before, but shot it full of the essential vitamin, thus bringing back its health value.

So it is in our cities. We rob the denizens of our great business sections of the sunlight, and then we proceed to invent machines which make the solar system entirely an indoor affair. We become worshippers of the sun, but the sun is a god from the machine.

So it is with parks. There was a time when we permitted the realtors to seek fresh woods and pastures new and do what they would in the name of subdivision, not putting aside a proper amount of ground for playgrounds. Creating things of ugliness, they forgot the generations for which every real civilization must live. We permitted these outlying communities to be planned merely in accordance with the exigencies of the real estate operator who wished to make as much money per square foot as possible.

The purpose of city planning, as I see it, is to prevent conditions

that eventually will be insufferable. It has gone hand in hand with the great improvement in municipal government in the United States. Practical idealism is a great product of city planning. Unless great national projects like the Foundation which has been established during your convention are given support, we shall find that the empire we would build will be built upon sand. We are facing a critical period in American life, and it is up to us to see that government of the people, by the people and for the people shall be maintained in the United States!

ROUND TABLES

BUDGETING THE CITY PLANNING PROGRAM

INTRODUCTION

C. E. RIGHTOR, Detroit Bureau of Governmental Research

The text of what I have to say is found in an editorial comment of the New York Times on the Regional Plan of New York. I will give you just a part of it: "The city beautiful is not a concept adequate to modern needs. The plan of today for a metropolis like New York should meet the highest possible practical, esthetic standards, but it must also take account of economic factors and broad social trends. Else, in a contemporary phrase, it risks dying of its own greatness."

During the seventeen or eighteen years that I have occupied in governmental research, I have heard a great deal about city plans. I have seen some, and have been delighted with the artistic way in which they were presented. But I have wondered where many of these fine plans have disappeared to. In many cases I have seen the city's interest in the plan wane and the plan commission become almost useless, with no further zeal to carry out the plan, and I wondered why. May it not be because there was nothing in the report to show how the plan could be consummated, step by step?

There are two elements, certainly, that must always be considered in any planning program. The first is the time needed to carry out the plan, and the second is the money needed. The plan must be attuned to the public purse. The planner must give more attention to the city's financial picture, not alone to the need for public improvements, but to the economic ability of the city to finance them. In other words, we must apply the budget principle

to the city plan. We have made some progress in budgeting—home budgets, business budgets, and governmental budgets—and we are now coming to budgeting our long term programs. A city plan cannot be consummated in a single year. We must cut it up into sections, and put the projects that should be in each year's program into the budget for that year. In other words, part of our budget for each year should include capital outlays as well as current expenses, for, after all, a budget as applied to government is merely a program of what that government is planning to do for that year, what those activities will cost, and how they will be financed.

Who is going to prepare that budget, or financial program? The plan commission, either official or non-official, should prepare the program of capital outlays and submit it to the executive of the city. His task is a great one because he must review the program of public improvements and correlate the proposed expenditures, project by project, with the available or advisable revenue. He must then submit the proposed program to the legislative body in whose power is the final approval.

As you all know, most of our large cities are confronted with very extensive and expensive improvement programs due to increase in population and expansion of the city's area. Several cities have prepared rather complete improvement programs which carry with them bond issues, among them being St. Louis, Dallas and Schenectady. Cincinnati is a very good example of cooperation on the part of the city, the school board and the county, in the preparation of a long term program, and in all of these there must be a study of the ability to finance, namely, the tax limit, the existing debt, the debt limit, the possibility of financing by special assessment, the consideration of improvements that pay for themselves.

The Committee on Plan and Survey, appointed by the Mayor of New York, had a sub-committee on Finance which published a very thorough report recommending that the long term program be allocated year by year and that the Mayor should include an amount in his yearly budget to take care of that year's portion of

the long term program. The New York report suggests, incidentally, a tax limit of \$2.66, per \$100, which raises a very important question in connection with planning. What is a reasonable tax limit for all purposes, including capital outlays?

Finally, the budget should be subject to review and revision. We have seen fit in Detroit to revamp our program every second year, bringing in new projects and dismissing those which have been carried out.

A BUDGETED CITY PLAN PROGRAM REDUCES WASTE

GEORGE B. FORD, Technical Advisory Corporation, New York, N. Y.

Everyone is interested in getting better value for the tax dollar. We have already made a long step forward in that direction by eliminating much of the former waste in current city operation. We have done it first, by more efficient administrative methods and, second, by the economies resulting from the creation of an annual budget. However, at that, often less than half of the tax dollar is spent on current operation. Capital expenditures are rarely included in the annual budget.

It must be obvious that just asking city departments to fix their capital needs for the next year or two is anything but an efficient way of handling permanent improvements. One department may be shortsighted. Most demand as much as possible. It is guesswork at best.

The logical and the only effective way of handling permanent improvements has been pointed out recently by a score of progressive cities. East Orange, starting in 1921, was the first city to prepare a comprehensive city plan and budgeted program for executing it over a long period of years. St. Louis, Kansas City, Toledo, Dayton and Dallas followed with big bond issues on five- or ten-year programs, although St. Louis and Dallas were the only two cities to actually carry out their programs on a large scale. Detroit, Los Angeles, San Francisco, Buffalo, Providence and

Schenectady have all prepared five- to ten-year programs. Trenton, White Plains, Rye, Ossining, Irvington, Bronxville, Mamaroneck, Briarcliff Manor, Moorestown and New Rochelle have all prepared comprehensive plans, long term programs and trial budgets. Five of these are already adopted tentatively and the others are serving as recognized guides in municipal finance.

Cincinnati has gone a step further and in 1927 there was appointed a joint official committee representing the various bond issuing authorities: that is, the city, the county, the school and other boards, to coordinate all of their respective bond proposals and develop a common program. The program was made out for five years and is now in effect.

The accepted procedure, as evidenced above, is as follows:

1. Make a scientific plan of all the city's physical needs for ten to twenty-five years to come.
2. Make a program of these needs in the order of their actual urgency.
3. Prepare a ten- to twenty-five-year rough trial budget of the city plan program.
4. Adjust the program of urgency and the trial budget so that the projected expenditures in any one year will not exceed the normal ability of the city to pay for them.

Taking the Trenton or New Rochelle City Plan and Trial Budget as an example, all proposed public improvements were first determined after exhaustive study. Then the order of relative urgency was calculated over a twenty-year period. Next, the cost of each item was estimated so that an approximate capital could be determined for each year.

However, in making a program and trial budget of capital expenditures, dates of undertaking and approximate costs are not alone sufficient. It is necessary also to determine how much the city can afford to spend in addition to current administration and maintenance costs plus debt service charges. Debt service charges

on existing debts can readily be determined for each future year. Municipal operating and maintenance costs tend to increase with population, except in the case of the very largest cities. Therefore, a projection of population growth can be used as a factor in determining normal operating and maintenance costs at any given date in the future. Sewerage, paving and repaving costs can be determined in a similar manner, as, other things being equal, they also tend to increase with the population.

The total revenue of municipalities also tends to increase about ten per cent more rapidly than population increases. In other words, the assessed valuations per capita, on which revenue is largely based, gradually increase as population increases. Tax rates also tend to increase somewhat with the increase of population, with the result that the total revenue should increase at least as rapidly as the population and probably five to fifteen per cent more rapidly.

Now if the operation and maintenance costs are subtracted from current revenue, the balance, if any, is available for the financing of public improvements. If the latter can be financed directly on the pay-as-you-go principle out of current revenue, the municipality is on a very conservative and strong financial footing. However, this can rarely be done at least entirely, so that some financing by bond issues, whether serial or term, becomes imperative. The interest and amortization charges must be calculated on each proposed bond issue to see that the carrying charges can be taken care of out of the current revenue balance. Otherwise the bond issues must be reduced to a point where they can be taken care of, or the revenue from taxation increased correspondingly. The interesting part is that in Trenton, and several of the other municipalities above referred to, it was found that small bond issues in the immediate future would suffice and that all the rest of the improvements could be taken care of as needed on the pay-as-you-go principle.

However, a trial budget is only the first step. It does serve a most useful purpose in determining and showing how the complete

city plan can be carried out without raising taxes. In other words it shows that the plan is a practical, waste-saving proposition but its usefulness stops there. By all means it should be superseded right away by a reasonably exact, authoritative five or ten year budget prepared cooperatively by a joint commission composed of the fiscal officers of the city, the school board and of the county, and of any other financially independent governmental unit whose expenditures might affect the capital expenditures of the city. It should also include a member of the Planning Board. Such a joint commission, as in Cincinnati, Dallas, Detroit, Schenectady, White Plains and Roanoke, should take into account all current as well as capital expenses that in any way affect the taxpayer and prepare a workmanlike, all-inclusive budget that can be officially adopted by all the governmental units affected as in Cincinnati. This budget would be checked up each year with any changing conditions and adjusted as the joint commission might find necessary.

Such a budgeted city plan program is the logical next step after the current annual budget and is its obvious supplement.

Mayor John C. Lodge of Detroit stated to the Common Council on January 15, 1929: "A well considered program for capital expenditures, looking forward for a term of years, should assure a harmonious development of the city's physical properties, and a development made at a minimum expense to the taxpayer."

The following are some of the reasons why a long term budgeted city plan program should be an excellent investment for any city:

1. The budgeted city plan should give the taxpayer as well as the official a much better opportunity to see just what he is getting for his taxes and assessments. He can also see far better what the future holds in store as to ultimate cost of improvements. All of which makes it possible to avoid unexpected increases in the tax levy.

The fifty year budgeted plan for White Plains, which amounts to a total of about \$45,000,000 was prepared with a particular view to foreseeing the future and avoiding surprises.

Mount Kisco, with its twenty-two-year program for \$2,500,000 of capital expenditures, necessitates only \$300,000 of new bonds.

2. A budgeted plan makes it possible to determine for many years ahead what permanent improvements can be handled on the pay-as-you-go principle and what will have to be handled by bond issues.

The budgeted plan of the City of Trenton, N. J., which provides for capital expenditures of \$26,000,000 over a period of twenty-three years found it possible to include \$9,000,000 for repaving without being obliged to assess any of the cost locally and at the same time take care of most of the budgeted program on the pay-as-you-go principle.

Detroit, in its ten-year program for \$340,000,000 exclusive of sewers and transit, is preparing to take care of 17 per cent on the pay-as-you-go principle; 11 per cent by local assessment; 20 per cent by departmental revenues, and the balance in serial bonds.

3. A budgeted plan would show much more clearly just in how far it is desirable to pay for public improvements by special or local assessments.

In the budgeted plan for Mamaroneck, N. Y., where heretofore there had been almost no local assessments, it was found possible to assess at least 50 per cent of the street improvements locally, thereby releasing over a million dollars for a civic center and a station plaza and still pay for everything on the pay-as-you-go principle.

4. The budgeted plan shows how to avoid the waste that comes with undertaking improvements before they are actually necessary, or before they could possibly give an increased value to neighboring property.

The New Rochelle budgeted plan shows that over a million dollars of public improvements that were on the point of being carried out could better be deferred from ten to fifteen years.

5. On the other hand, the budgeted plan shows how to avoid deferring vitally needed improvements, as is often done just to keep taxes down.

St. Louis found it was quite practicable, without any undue increase in the tax rate, to speed up their whole improvement program and take care of \$87,372,500 worth of capital expenditures within ten years.

Mamaroneck, Rye and Bronxville, N. Y., with twenty-two- and fourteen-year programs for 7, 5½ and 8½ million dollars respectively, found that they could speed up their improvement programs because their financial condition worked out better than they had expected.

6. The budgeted plan can readily provide an adjustable margin for speeding up needed public improvements so as to give employment for those out of work in times of stress.

This is probably the greatest social value of the long term budget.

7. The budgeted plan shows how to avoid the extravagance of big bond issues which may be voted in the whipped-up enthusiasm of the moment.

The change in the New York seven per cent savings bank bond investment law in 1928 gave most cities a noticeably larger borrowing capacity than they had had before. Naturally, this has incited various cities to extravagance. Experience is proving that nothing is so salutary as a carefully worked out budgeted plan to bring such cities back to sanity. In fact, one large western city that has recently floated several important bond issues, is finding that the voters are taking the bit in their teeth, and it is having great difficulty in keeping them from running the city badly into debt. The city is using a budgeted plan as the most effective way of bringing the voters to their senses.

8. The budgeted plan indicates possibilities of picking up, whenever they are particularly cheap, properties which will be eventually needed for public improvements.

The plan is showing in Moorestown and Trenton, N. J., various possibilities of picking up desirable properties while they are still cheap because it points out definitely that they will be needed by such and such a date and provides a margin

for acquisition whenever the market would seem to afford the best bargain.

White Plains is finding this feature particularly effective in its street widening program.

9. The budgeted plan helps in extending improvements to undeveloped areas without undue cost to the taxpayers.

In the municipalities which consist largely of outlying farm lands or estates, such as Briarcliff Manor, Bedford, Ossining, New Castle and Irvington, N. Y., or even Cincinnati, Ohio, the budgeted plan indicates just how improvements essential to the development of outlying tracts can be financed in the near future without undue cost to the general taxpayer and at the same time without becoming a burden on the local property owners.

10. The budgeted plan shows clearly where it may be desirable to shift improvement costs to the county, or state, or where annexation may be the best policy.

The plans of Dayton, Ohio, and of Trenton, N. J., have worked out in detail the relation of public improvements inside of city boundaries and those outside with the result that a definite program of annexation was developed in each case based on the findings of the budgeted plans.

11. The budgeted plan permits a coordination of the city plan with the county and school programs, all with a corresponding avoidance of overlapping and an adjustment of the tax rates.

Wayne County, Mich., adopted an \$8,000,000 ten-year pay-as-you-go budgeted plan last November. At the same time the central city of Detroit is adopting a \$340,000,000 budgeted program with the expectation that the two programs will be coordinated.

Allegheny County last June voted a \$43,600,000 five-year budgeted program, which in turn is to be harmonized with the projected capital budget of the City of Pittsburgh.

Cincinnati was the first city to undertake such a coordinated program in 1927, including not only the county but the school authorities.

12. The budgeted plan helps the equitable distribution of improvements among rival wards, or it shows clearly just why the demands of a given ward may be impracticable or unfair.

In virtually all of the municipalities where budgeted plans have been made it has been found entirely feasible to make an equitable distribution of improvements among the rival wards and at the same time it has furnished the ward councilmen with convincing arguments to satisfy the demands of their constituents.

13. The budgeted plan should include most of the reasonable demands of citizens. If the demands are not reasonable, the plan would show why they are not and how the plan would solve the problem more satisfactorily. It thus helps councilmen to resist the importunate and often misguided demands of their constituents.

The budgeted plan of New Rochelle solved a deadlock of long standing over the site for a city hall by proving that a heretofore unsuggested site was much better than any of the others, both from a planning and from a financial point of view.

14. The budgeted plan should give the politician many excellent talking points.

It is quite true that in Cincinnati, White Plains and St. Louis the budgeted city plan was played up as an outstanding campaign argument by the party responsible for it.

15. The budgeted plan constantly before the public should make it difficult for a councilman, even with the best of intentions, to suddenly interject a pet project into the improvement program.

The plan is too much in the limelight to make such procedure wise. As a matter of fact, at least one budgeted plan has been suppressed by the city authorities for fear it might restrain them too much.

16. The budgeted plan is bound to stabilize the economic situation. It should help the leasing of property, as tax and assessment demands and the benefit from improvements can be more definitely anticipated.

There seems to be a very general feeling in the municipalities where budgeted programs are in effect that the plan is stabilizing values and helping the real estate market, for everyone now knows just what to prepare for in the way of taxes or assessments and what he may expect in the way of benefits from improvements.

17. The budgeted plan should improve the city's credit and thus lower interest rates, debt service and taxes.

It is true that cities that have budgeted plans in effect are securing low net rates on their new bond issues.

The budgeted city plan of White Plains is said to have already saved the city several hundred thousand dollars.

18. Preparing a budgeted plan is nothing more or less than what is done currently by most successful private corporations, telephone companies and other public service corporations. If it is considered essential there, there is no reason why it should not be equally effective in city financing.

19. Perhaps most important of all, a budgeted plan begets public confidence in the administration and inspires an honest civic pride in the business likeness of the city government.

The President of the New York State Conference of Mayors, Honorable Fred C. McLaughlin of White Plains, stated recently: "The solvency, credit and prosperity of a city depend on wisdom in capital expenditure and the budgeted city plan. This, in my mind, is the keynote of success."

Nor is the problem solved merely with the adoption of a budgeted city plan. The plan and budgeted program must be permanent. A planning procedure must be established never to be departed from in the future. This means: (1) a permanent bureau or office of city planning collaborating with the public works or the engineering department; (2) a special legal service for city planning to handle land acquisition, setbacks, mapping, etc.; (3) an advisory board to sit periodically with city officials to determine general policies, and (4) a joint capital budget commission. Making a budgeted city plan actually work is the most difficult problem

of all. However, Cincinnati, White Plains, Dallas, Rye and Mount Kisco are already proving how simple and straightforward a procedure it is in practice and how satisfactorily it is in keeping down taxes.

The general adoption of a long-term budgeted city plan should prove to be the most effective thing cities and towns can do to relieve the burden on the taxpayer and to satisfy him that he is getting full value for money expended by the City.

DISCUSSION

JOHN NOLEN, Cambridge, Mass.: The explanation of failure to budget for city planning expenditures is not that the planners were dreaming in the beginning of the movement, or were not practical, or that they did not know that city planning bills had to be paid. It was largely a question of public policy. I recall in one city where I was making a plan being advised by the municipal authorities not to include in the program any estimate of the cost of execution of the projects. The idea was that the citizens would not approve of projects if they realized what they were ultimately going to cost. There is nothing new in this idea. We all know from experience that it is the nature of the individual human mind and of the corporate mind. I am not arguing for leaving out the costs in a planning program. I am merely pointing out why they have not always been included, and what one of the practical difficulties is.

In smaller cities this problem is even greater than in the larger cities. The smaller city is not accustomed to thinking in large terms, involving millions of dollars and long-time obligations. The average city council in such a city fears to sponsor programs requiring large expense.

The second point—and again this applies more particularly to the smaller city—Is it satisfactory to have the budget prepared merely by the city planning commission in consultation with the city planner? I have seen the advantages of having such a budget prepared and sponsored by a group of the leading business men and bankers of the city, who are accustomed to dealing with the financing of great private projects. A planning commission is often made up largely of men who are not familiar with the subject of finance in its larger aspects. They may also not have the weight,

as experienced financial leaders in the community, to stand as sponsors for programs of public improvements involving many millions of dollars of municipal expenditures. Would it not be well to recognize these facts, and to have any budgeting of the city planning program sponsored by a separate group of the most responsible men in the community in matters of finance?

MR. RIGHTOR: My conception of the city plan is that it should be a complete presentation of the planning problems of the city, the ideal program, and that it should be split into projects that can be carried out on a year to year basis, so that it can be definitely connected with the annual budget of which it is properly a part. As to Mr. Nolen's second point, I should say that a plan should have the approval of an extensive advisory citizen body.

GEORGE W. MELVILLE, Cincinnati, Ohio: Financial statements were given as tax receipts long before city plans were. It was left to city planners to make these financial statements interesting. I think the big job now, if we are going to get our plans carried out, is to put all our cards on the table and show that it is not going to cost any more money to carry out even the large projects than would ordinarily be expended in a much less scientific way.

We have established in Cincinnati a policy that the tax rate will be for the next five years \$2.15. On that basis we are finding that we can lay out big programs, including the authorization of bond issues, and we are actually carrying out the major recommendations of the city plan. The idea of budgeting is spreading to the smaller communities, of which there are twenty-four in the Cincinnati region.

HENRY WRIGHT, New York, N. Y.: In some of our newer communities opposition has resulted because bond issues were rather recklessly authorized, and I should like to ask whether the financial experts in city government have worked out the class of public improvements which justifies bond issues, and the class which should be paid for out of the annual income of the city.

MR. RIGHTOR: In the model bond law, issued by the National Municipal League of New York, the purposes for which long-term bonds may be issued are discussed. In the appendix to this law the actual practice of four states is given—of Michigan, New Jersey, Ohio and North Carolina. The law recommends also that municipalities should issue only serial bonds because of the diffi-

culty experienced with respect to sinking fund provisions in long-term bonds.

As to the period for which planning budgets should be made, I think it does depend somewhat upon the size and condition of the city, whether it is a new and rapidly growing and changing city. In general, I should say that it would be possible to look forward for ten years and budget for that period. My only experience is in large cities where the amount of money available is subject to a large number of unforeseeable conditions. I think it is not rational to look too far into the future. Of course, the plan itself might include a program of improvement for a much longer period, but the financing should be limited to a ten-year period. As I have already said, I believe that the budget should be revised every two years in spite of the size of the task.

MR. NOLEN: I just want to raise the question as to whether ten years is not too long a period. We are just beginning the application of the budgeting principle to long-term programs. We want to make sure of its successful application, and not open ourselves to attack, because we have lacked in the accuracy of our estimates. To estimate so far ahead as ten years is a good deal of an undertaking. It may be better to reduce the time for which we make these budgets.

MYRON D. DOWNS, Cincinnati, Ohio: The necessity for details on which accurate estimates of cost may be made is something that planning commissions have to a large extent overlooked. For example, one of the items in the Cincinnati program of 1927 contained an error of 100 per cent in the estimate. Now when a city council financial committee gets hold of an error of that kind its confidence in the estimate and the people making it is destroyed. Our task in the planning office of Cincinnati has been to take the projects of any particular decade and work them down to detail for which accurate estimates can be made either by the city engineer, the city manager, or the municipal research bureau. These estimates need not get publicity. I have in mind the point made by Mr. Nolen about alarming the population.

LOUIS P. HEAD, Dallas, Texas: In December, 1927, the people of Dallas voted a bond issue of \$23,900,000 for public improvements to be made over a period of nine years. A citizens' committee, a member of that committee being the chairman of the city plan commission, devised the program of those improvements for

the entire period. They were submitted to the public and approval given to each phase of the program. The only limitation was that not more than \$4,000,000 should be expended within any single year of the nine years.

This plan has worked out very successfully. Every detail was set up under the committee's estimates before the bond issue was submitted. For illustration, we have a constitutional limit as to the tax rate, so it was necessary for the committee to provide interest in the sinking fund requirements for the sinking of bond issues, to fix a schedule for an increase in the ratio of valuation from year to year for the entire period of nine years. They did that so that the voters when they went to vote on this bond issue program understood in advance at the time they were voting precisely what their valuation basis would be at the end of the nine years, in other words, 1935 or thereabouts.

The water budget part of the program had carried no restrictions. The water department was to receive \$4,000,000 for necessary improvements, and those were to be made without limitation. However, the experience showed that the committee's judgment on all cases of moneys for various improvements had been sound; in the expenditure of the water department it was possible to effect a saving of about \$800,000. In other words, the improvement project had cost \$800,000 less than the committee's estimate. The other parts of the program that have thus far been worked out have shown similar results, so that rather than finding we will have a lack of money at the end of the time, we will perhaps have surpluses in some of those accounts, that is, it will not be necessary to issue the bonds at all.

In April following that large city bond issue, the county voted \$6,900,000 for a highway program, chiefly within the city. A levee district was formed, and at the same election in April \$6,500,000 was voted for the improvements in the river through the building of levees, shortening the channels, etc. It was necessary, therefore, to coordinate these three programs if we were to get efficient results. That coordination was brought about through the association of the engineers on the various projects and the city and county governments with the levee board, so that today new bridges are being built across the river channel, the levee program is proceeding rapidly, the various other municipal improvements all are being carried out jointly as it were, although being made by the various governmental agencies separately.

The only difficulty we have had thus far, and it is not a serious one, has been the disposition of the recent city administration to disregard or override the opinion of the citizens' supervisory committee as to the urgency of the various projects set up in the nine-year program. The citizens' supervisory committee was appointed primarily with the idea of determining the priority of projects or their urgency, and the city administration then in power, which has since been retired, differed with the committee on some phases of the program. They wanted to spend money this year for something that the committee thought should be postponed until next year or two years hence. However, as a matter of fact, the committee won out save in one or two minor instances.

It would be my suggestion from the experience of Dallas that any city that wants to budget its capital expenditure as to bond issues over a period of years should plan in advance for the expected increase in taxation, so that the citizen, when he goes to vote, will know exactly what he is going to be up against next year, five years, and ten years ahead.

GARDNER S. ROGERS, Washington, D. C.: The order in which improvements in a planning program are carried out is of the greatest importance. I have known instances where the city plan has been used actually as a means to defeat the principles of city planning because projects of minor importance in the planning program have been carried out and the important projects neglected. There is a technique in establishing the order of precedence and I offer, as a suggestion, that an advisory committee be appointed, not by the administration, but by the chamber of commerce or some other strong civic organization. This advisory committee, which, of course, should be composed of the influential men in a community, should have available the services of a city planner, for he is probably the best qualified to suggest the order of precedence for improvements. When they have determined this program, it should be referred to the administration, and the advisory committee will be in a much better position to do this since it is not the creature of the administration. When, after two or three years, there may be a change in the municipal administration, and a tendency to depart from the planning program, the pressure of a large number of influential citizens, who have no special axe to grind, will be of the greatest help in keeping the new administration on the track.

ROBERT WHITTEN, New York City: I agree that in the smaller communities the long-term program can be taken care of informally by a citizens' committee as Mr. Rogers suggests, but in the larger cities this may be a questionable procedure. The studies of the city plan commission would naturally form the backbone of the long-term program, but there will be the projects of the health department, the school department, and of the board of public works, all of which should be correlated in any long-term program.

STREET PLANNING

A CONSIDERATION OF WIDTHS, SINGLE OR DOUBLE ROADWAYS,
SERVICE ROADS, GRADE SEPARATION, ELEVATED ROADWAYS,
RESIDENCE DISTRICTS, PARKWAYS, BUILDING LINES

FREDERICK BIGGER, Architect and Town Planner, Citizens Committee
on City Plan of Pittsburgh

If the street planning we are compelled to undertake is done without any assurance whatever that some of our most serious traffic difficulties are to be corrected, and without assurance that we are not creating new traffic problems, then we must be going at this problem in the wrong way. I suspect that, with notable exceptions, our municipalities are still planning their streets in detail as isolated units—wider and straighter and perhaps longer than before, but nevertheless as isolated units—and I do not see that we shall by this procedure ever cope adequately with that fluid movement, traffic, which in its rhythmic ebb and flow is like water, and which in its constant accretions and dissolutions has the likeness to mercury.

The streets we have inherited from the days antedating modern traffic are totally unorganized, in the sense that we are beginning to see the need for system and organization in the channels through which may be secured efficient traffic circulation. When, therefore, we add but a single new element to this unorganized condition, we often complicate rather than simplify our difficulties.

We can do, and have done, much in organizing the movement of traffic itself; but this I believe to be but a stop-gap allowing us time to experiment and to think our problems through. It is one thing to organize controlled traffic movement within a network of pre-modern channels where such control can never produce entirely adequate results; and it is quite another thing to reorganize and

replan these old traffic channels themselves, or to create a highly organized system of channels in now undeveloped territory, so as to assure a maximum of automatic control of traffic movement.

It is both appropriate and necessary that our round table discussion of street planning should cover certain topics which must be listed separately as they are on our program. These are all interesting and important. However, I have assumed the privilege of dispensing with a treatise on these detailed aspects of street planning for you to discuss. Instead, my function is to encourage you to contribute your record of experience, observation, and theory. If we are to be "practical," I think we should stress "theory," because the sounder the theory upon which our planning and experiments are based, the more practical will be the result.

I propose that, during this discussion, we do not forget that good street planning involves establishing important relationships of several different kinds. These are listed briefly as a background for the detailed discussion or, if you choose, for discussion as of themselves.

- (a) The most obvious relationship has to do with the suitability of the street channel itself to pedestrians and to the different types of vehicle which are to pass through any given uninterrupted stretch of a street. Here we think primarily of alignment and of the subdivision of the cross-section of the street.
- (b) One relationship is that between the uninterrupted stretch of street channel and the "valves" through which traffic must be passed at street intersections. This concerns the effect which such interruptions have upon the general movement of traffic.
- (c) Another relationship is that between the channels of general movement and the more or less continuous "harbor line" (the curb) where accretions and disintegration of the main streams occur.
- (d) Still another relationship is that between the individual traffic route and other traffic routes—a relationship wherein we again become concerned with the valves of intersections which so largely determine whether we are to have "pulsat-

ing traffic" or whether we can secure real "traffic circulation." Here we must know something of the possibilities of the enlarged intersection (perhaps the circle that it is legitimate to call a real traffic circle as against merely the round point) or of more highly organized arrangements with different levels and ramps to assure continuous traffic movement.

- (e) A relationship which I am convinced has not yet been fully analyzed is that between a major thorofare system and the minor streets within the areas bounded by the streets of that system. For example, I suggest that we have here a field for profitable experimentation. It is at least conceivable that more satisfactory movement upon the major thorofares could sometimes be secured by imposing specific traffic movements *throughout* the intermediate areas.
- (f) It is self-evident, of course, that we must always have in mind, as we generally do, the relationships which must be established between the streets and the use or character of the districts they serve, whether the latter be residential, commercial, or industrial.
- (g) Finally, I suggest that we cannot forever disregard the capacity relationship between those systems of major thorofares which we may devise and the private properties which they are intended to directly or indirectly serve. Here we have conflicting forces to weigh and to ultimately reconcile—the limited ability of the highway to increase in size and capacity, as against the but slightly limited ability of private properties to increase or decrease the traffic burdens they place upon the streets which serve them. As to this point, what we have been doing in the past seems to me analogous to the actions of the victim of the mental test who continues to pour water into a receptacle with the intent to fill it while an obvious hole allows the water to escape as rapidly as it is poured in.

In concluding this introduction, it seems fair to remind ourselves that many municipalities have a blind spot, because of which they have not yet seen the compelling necessity to both study and reconstruct a portion of their streets so as to secure the organization of traffic movement upon which the future of their highly organized

private industries and businesses so definitely depends. They must recognize the difference between an accepted plan and a program of progressive construction which will be economically proportioned to other capital expenditures. And they must know the difference between measures which are preventive and measures which are merely palliative and postpone the inevitable day of municipal reckoning.

DISCUSSION

MR. BASSETT: The width of a street is hard to fix ahead of time. A city was planned on Chesapeake Bay at the end of the Delaware Canal with streets 150 feet wide. They thought it would be a large city, but it did not grow. Sometimes a little village grows unexpectedly into a big city, and the main business is crowded into a 50-foot street. That street must be widened. The trouble is that most of these streets need to be widened by condemnation. The process is to carve off the head of each lot, and the real estate expert testifies that the front is worth just about 60 per cent of the entire lot because it is on the street. He is very likely to get away with this valuation if the city is paying the entire bill or a large part of it because there are no assessed land owners to protest. Condemnation procedure is so expensive that we are going to find, in the next thirty or forty years, that automatic methods of widening streets will more and more prevail.

I want to tell you about Turin, a city in Italy not much visited. It became the policy of that city to make wider streets by abolishing sidewalks. What was the result? People would walk on the edge of the roadway. An arcade, built on private property, would furnish an attractive place for customers to walk instead of on the edge of the roadway where they might get bumped. Partly because of history, partly because of the climate, and partly because of convenience, the city is now in its business section practically filled with business arcades on the private land, and the roadways have been widened in many cases 30 feet. In the streets that have not been arcaded, rents are lower, and you find fewer customers there.

Now I am not advocating arcades, because climate, custom and many other things must be taken into account. But there are other ways. For instance, there is the official map of New York method, under which a new street line can be established under the police power. Here condemnation must be used sooner or later,

but the owners are likely to dedicate. My suggestion is that we urge, when condemnation takes place, that the cost shall be paid for by assessment of the benefited land and also that both the condemnation and the assessment be an easier process, not forcing it all at once. We certainly are not going to widen streets very often as long as the lawyer and the real estate expert make the city pay 50 or even 60 per cent of the value of the whole lot, when only the head of the lot is chopped off.

WALTER McCULLOH, Niagara Falls, N. Y.: Mr. Nolen's plan for Niagara Falls suggested the widening of our main street at the north end of the city for a distance of 1,600 feet. It was at the point where there was a double line of trolley tracks and wide sidewalks, which left a way for vehicles of about 40 feet, always very much crowded. It was found most economical to widen on one side by taking 27 feet from lots which were in most cases 170 feet deep. Under the plan as adopted, no lot, after widening, would be less than 120 feet deep.

Just as Mr. Bassett said, the attorneys and the real estate people took the view that we were cutting off the front of the lot. We tried to show that we were rather making the back end of the lot much more valuable because the lot would have the same frontage on a wider street, and that its increase in value would be anywhere from 50 to 100 per cent. But that view did not prevail. Our plan included an assessment of the cost on an improved district, the city to bear 20 per cent of the cost, and the improved district, 80 per cent. The plan was killed by the opposition of the property owners within the assessment district. The result is that today everybody who can avoids this street because of the congestion caused by parked cars, the double line trolley track, and stop and go signs every four blocks. We believe that business is feeling the result of it and is beginning to move off the street, so that we still have hope that the improvement can be made at some later day.

P. L. BROCKWAY, Wichita, Kans: We are adopting the tactics, in Kansas, of widening and improving a parallel route when Main Street is too expensive for widening, and property owners on Main Street are getting nervous. We are also working on automatic widening of the main streets in our suburban centers. After widening the roadway so that it occupies the entire street between building lines, we compel the set-back of commercial buildings by restrictions under the zoning ordinance, and then put a little sugar

on the stick by permitting diagonal parking and insisting that sidewalks shall be built on private property to which we acquire no title. Now, the business houses want the people there, so the result has been that in some of our suburban centers shops have been designed in one building which is architecturally desirable, and set so far back from the street line as to permit parking entirely out of the line of the moving traffic. Not only is the sidewalk on private property, but even a parking lane.

May I say a word about residential layouts? The present tendency I suppose practically everywhere is to eliminate the alley in new residential neighborhoods. A few years ago I dropped off the train early in the morning in Rochester on collection day. I got there just ahead of the trash collector, and you know how it looked. It prompted this suggestion—that we put an alley in the rear of the lots paved just wide enough for service, and that we go a step farther and prohibit the cutting of the curb at the front of the street and make all cars use the service alley to get to the garage. The front lawns will then be left entirely unbroken by the white glaring cement drives that are being built everywhere.

MISS HARLEAN JAMES, Washington, D. C.: I would like to ask of what use it is to spend millions of dollars widening streets, when you permit the land facing on the widened street to become increasingly overloaded so that in ten or twenty years you have the same state of congestion. This is equally true of streets developed with apartment houses and business streets.

Twenty years ago, in Baltimore, we proposed that the streets which are very narrow in many places be turned into service streets, or alleys, and that the alleys become garden streets whenever they had space enough on either side. This was just the reverse of the plan proposed by Mr. Brockway, but the same end would be accomplished. The last that I knew about Baltimore, the gardens had been developed in about thirty blocks, but there never was a city-wide organization to turn alleys into attractive garden streets.

MR. BIGGER: It seems to me that it is almost a practice in our cities to widen streets on the sole theory that the cost will be paid out of larger tax returns due to an increase of property values. After the widening has taken place, the extra value of the property has encouraged the owner to build structures of greater capacity. This, in turn, leads to increase of assessments and makes it in-

creasingly difficult to pay taxes, so that soon property owners are clamoring for more people to be brought to the place—more tenants, more shoppers—so that they may have more revenue from their buildings with which to pay the increased taxes. In other words, we have a spiral of congestion and overloading.

ARTHUR C. COMEY, Cambridge, Mass.: One point in connection with the financial situation that does not seem as yet to have been mentioned. We may be increasing values by widening one street, but are we creating more value for the whole city? It is a question just how far the public should pledge its credit which, after all, is not unlimited. If we are merely transferring values from one business section to another, or preventing values from developing on another business street by concentrating on a single street through expensive widening, it is a question whether the whole community is benefited. What we must do is to increase total values so as to give a greater convenience for doing business in that city over another city, and so that people will pay more for the privilege of living in that city.

MR. BIGGER: A suggestion comes to me from Mr. Henry Wright who says that he is putting this point and a number of others that have to do with parking into an article in the **"American City."* He calls attention to the fact that when one is driving along a street where the more common type of diagonal parking is permitted, it is easy enough to drive directly into the parking position; but in backing out one is apt to interrupt *two* lanes of moving traffic. He suggests backing from the moving traffic lane into the diagonal position. Although a little bit more room might be required for backing in, the advantage would appear in moving forward out of the parking space. Only one lane of traffic would be interrupted when the car moved out, and the driver would be in the front of his car—a much better position for getting into the line of moving traffic.

MR. COMEY: In getting out of a parking position, you can always wait for a gap in the traffic flow, but if you back into your parking position, you are bound to delay traffic. There are a number of cities where backing in is required, and it is alright where traffic is light.

* June, 1929, issue of *"American City,"* page 108.

GEORGE H. NYE, New Bedford, Mass.: Street widening is admittedly too expensive for a good many cities, and although regulation is temporizing, can we not accomplish a great deal by the use of one way streets? By using a pair of one way streets, to be sure we have no more street surface than we had before, but we have the great advantage of avoiding the constant friction of meeting and dodging traffic coming from the opposite direction. In our city it has worked wonders. We have many streets only 40 feet wide with 24 foot roadways and with parking on each side. By forcing the automobiles to use the center of the street and go in one direction, I am certain that we have doubled the capacity of those streets.

ROBERT WHITTEN, New York City: I would like to speak of the conflict between the development of the street and the use of the street. A great many times we will develop a street at a good deal of expense, and the development will apparently be successful in that it increases business values, but just in that measure it thwarts the purpose for which the street was designed, namely, to carry through traffic. The more successful a street is in developing business and creating values, the less successful it is as a major traffic artery. I think we must work out two street systems, first, the major street system that will be designed to carry traffic from one part of the city to the other, and then the streets whose primary purpose is to create frontage for business or frontage for houses.

There is serious conflict in the development of these traffic routes. Sometimes they pass through residence sections as well as business sections. There is no residence section that wants a heavy traffic route to pass through it. If we create the best through traffic arteries, we certainly cannot assess their cost on the frontage which may be for local business or for homes. There is only just so much frontage that can be created by a given population for business purposes. If you arrange it in one place, you take it from another place, or at least, the increase won't come to one place that would otherwise have come.

We need good business streets of adequate width, but we also need good traffic streets, and we will plan more wisely if we separate in our minds the business street and the residence street from the express route or through traffic route, and consider each as an individual problem.

JOHN NOLEN, Cambridge, Mass.: The discussion so far has been confined largely to the complex problems and the burdensome costs incident to changing existing conditions which are not well adapted to modern requirements. There is one very important feature of planning, especially regional planning, to which we should be giving increasing attention. I refer particularly to the super-highway. In this connection we have a chance to set some high standards. What width should the super-highway have? In this Niagara Frontier neighborhood, I think it has generally been established as 100 to 120 feet for the right-of-way, and 40 to 60 feet for the roadway width. It is going to be difficult to find uses for the frontages of such highways because they will become, with traffic increase, express rights-of-way. It may be wiser and more practical, and even cheaper, to establish a wider right-of-way, say 200 feet, which will be in the center an express thoroughfare, but at the sides, and well screened from the traffic center, local roads which will provide frontages for homes. A related problem will be the elimination of crossings of the express thoroughfare at grade, and reducing as far as possible the number of openings from secondary streets onto main highways.

MR. BASSETT: Referring to what both Mr. Nolen and Mr. Whitten have said, I would like to make a statutory suggestion. A parkway under the law need have no entrance to it from abutting land or from other roads. The reason is that parkways have the legal status of parks. They are, in fact, park strips over which abutting owners have no easement of light, air or access. That is just the difference between a highway and a parkway. Now there is no reason why a super-traffic-way may not partake of the legal character of a parkway without being dedicated to recreation. Every state of the United States can, if it chooses, provide that hereafter every municipality in the state can establish super-traffic-ways over which abutting owners shall have no easement of light, air or access. They need have none of the other characteristics of parks, and just that simple statement I have made would fill the bill. Such a super-traffic-way could not become a business street. No man could open his show windows on it with safety because the city could block them up. No man could open a driveway on it because the city could block it up. There would be no parking. Grade separations would help to create great capacity for movement.

MR. COMEY: I have seen such a way in England, in Hammer-smith just outside of London. I am afraid that the first thing that would happen in this country would be that the city council would amend the ordinance establishing the trafficway and simply declare it a street. When I speak of super-highways I am not referring at all to the 120-foot right of way. That is not worthy of the name of super-highway unless it is a double-deck 120 foot street. I am not sure we want these super-highways anyway. I have been driving on them for the last two months risking my life, limb and car. They do carry a terrible traffic. Woodward Avenue is now in operation and for 15 miles there are four lines of traffic in either direction and often five lines when they stop at a red light. Forty miles an hour is the average speed, and buses travel even faster as their drivers are able to steer closer. They are the ugliest streets in the world, just great gashes of concrete through the landscape, their sides are unkempt, lined with telegraph poles and second rate business here and there. Nobody knows what to do with the rest of the frontage. On a crowded day you cannot get onto the highway from a side street for five or ten minutes.

Somebody has mentioned gyratory traffic as a solution of the traffic problem at intersections of these super-highways. I suppose that he intends to suggest a true traffic circle and one big enough to be a real test of the theory. I do not know where there is one now. When the traffic gets intense the opportunity for weaving across without interruption of flow is reduced very rapidly, even on 300-foot traffic circles. The suggestion of eliminating grade crossings has more possibilities. For crowded intersections of two super-highways of approximately equal traffic volume there should be both over-pass and under-pass; the through traffic on one using the under-pass and the through traffic on the other using the over-pass, interchange traffic on either super-highway making left-hand and right-hand turns on the surface intersection. Certainly this would very much expedite through traffic and all traffic.

RUSSELL V. BLACK, Philadelphia, Pa: The super-highway must be more and more considered as a railroad, and we should be minimizing the road intersections. In spite of this, I suppose that there are hundreds of new intersections created for every one that is eliminated.

The other problem which has already been mentioned is whether the super-highway should be, in fact, one highway or three high-

ways. For many miles all that may be needed is a central roadway of 40 to 60 feet, but in developed sections you do need side roadways for local traffic and for usable frontages. One of the questions is whether these side roadways should be maintained as separate local roads or, perhaps, county roads, while the main thoroughfare is a state road. I am not sure whether this can be practically handled, but from the present attitude of some state highway departments it appears to be their growing opinion that the state should be responsible for the maintenance of the central right of way. The main road between New York and Philadelphia is now laid out 100 feet wide. A group of property owners with three or four miles of frontage offered to give the state an extra hundred feet, making the entire width of the road 200 feet, or to charge the state \$300 an acre for enough land to make the road 300 feet wide. The state chose to buy the extra width and make it 300 feet, and not take the gift, and now the main highway between Trenton and New York for some distance has a right of way 300 feet wide.

HORACE L. SEYMOUR, Alberta, Canada: We are not troubled yet very much in Alberta with super-highways, but we do feel that in some of our cities and towns the pedestrian is not getting a fair deal. Near to the business districts we find parallel streets occupied by garages and a well defined habit of crossing the sidewalks on these streets as a means of access to the garage. We are considering stopping this usage and compelling the automobiles to come out on the street through lanes or alleys. We are also thinking of extending the same principle to residence districts to eliminate the constant danger to children and pedestrians from automobiles crossing the sidewalk every thirty or forty feet.

RESOLUTIONS ADOPTED BY THE CONFERENCE

PLANNING FOUNDATION OF AMERICA

WHEREAS, the National Conference on City Planning, through the demands of the cities themselves, has been required to act not only as a central national clearing house for planning ideas, but also as organizer and guide for planning movements, associations and commissions, and has given such service as it could out of all proportion to the meagerness of its means, and

WHEREAS, in order to meet the increasing call for educational and promotional services the Directors of the National Conference have deemed it advisable not to alter the original form or functions of the National Conference, but to create an adequately financed new service agency to render to communities the kind of non-technical preliminary assistance so often asked for, and

WHEREAS, in furthering that purpose the Directors of the National Conference on City Planning have caused to be set up the Planning Foundation of America on an initial budget basis of \$50,000 a year, and

WHEREAS, it is the object of the new Foundation to bring together the facts, figures and experiences of city and regional planning, to study and coordinate them and place them at the disposal of the public for inspirational and educational guidance, therefore be it

Resolved, That the National Conference on City Planning endorses the action of the Directors and pledges to the Planning Foundation of America its cordial approval and cooperation in achieving its fiscal plans and in effectuating its program of service to American communities.

APPRECIATION

WHEREAS, the Buffalo City Planning Association and its allied hosts in the Niagara area, under the leadership of Mr. George S.

Buck, Managing Director, Mr. George Bassett, Chairman, Buffalo Committee on Arrangements, and Mr. Alexander J. Porter, Chairman, Niagara Committee on Arrangements, have contributed so greatly to the success and enjoyment of the 1929 meeting of the National Conference on City Planning, demonstrating at all times the generous hospitality of this locality, and

WHEREAS, the Conference has been particularly impressed with the hospitality of the Lewiston County Club, whose attractive site has delighted all the members of the Conference, and by the work done in restoring Fort Niagara by the Old Fort Niagara Association, be it

Resolved, That the Twenty-first National Conference on City Planning expresses its appreciation for the efficient arrangements, success and enjoyment of its members attending the Twenty-first National Conference on City Planning, and therefore the thanks of this Conference is extended to all those who kindly assisted in its accomplishment.

APPRECIATION

WHEREAS, the press of the Niagara area has contributed so whole-heartedly to the success of the Twenty-first National Conference on City Planning, and has kept all the people informed as to the intent and accomplishments of this Conference, be it therefore

Resolved, That this Conference particularly thanks the press of the Niagara area for its valued contribution to the success of the Conference.

APPRECIATION

WHEREAS, Mr. Edward M. Bassett, President of this Conference, has again made a most valued contribution to the great interest in these meetings by his worthy advice and counsel, and his stern kindness in conducting many of the sessions, and his tireless application to the requirements of the office, be it therefore

Resolved, That the members of the Twenty-first National Con-

ference on City Planning do hereby record and extend to Mr. Bassett their greatest appreciation and thanks for this service.

APPRECIATION

WHEREAS, Mr. George S. Buck, Managing Director of the Buffalo City Planning Association, has at all times been an untiring worker, previous to and during this Conference, lending his time and personality to its success, be it therefore

Resolved, That the members of the Twenty-first National Conference on City Planning hereby express their appreciation for this valued service which was so helpful to the success of the meeting.

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